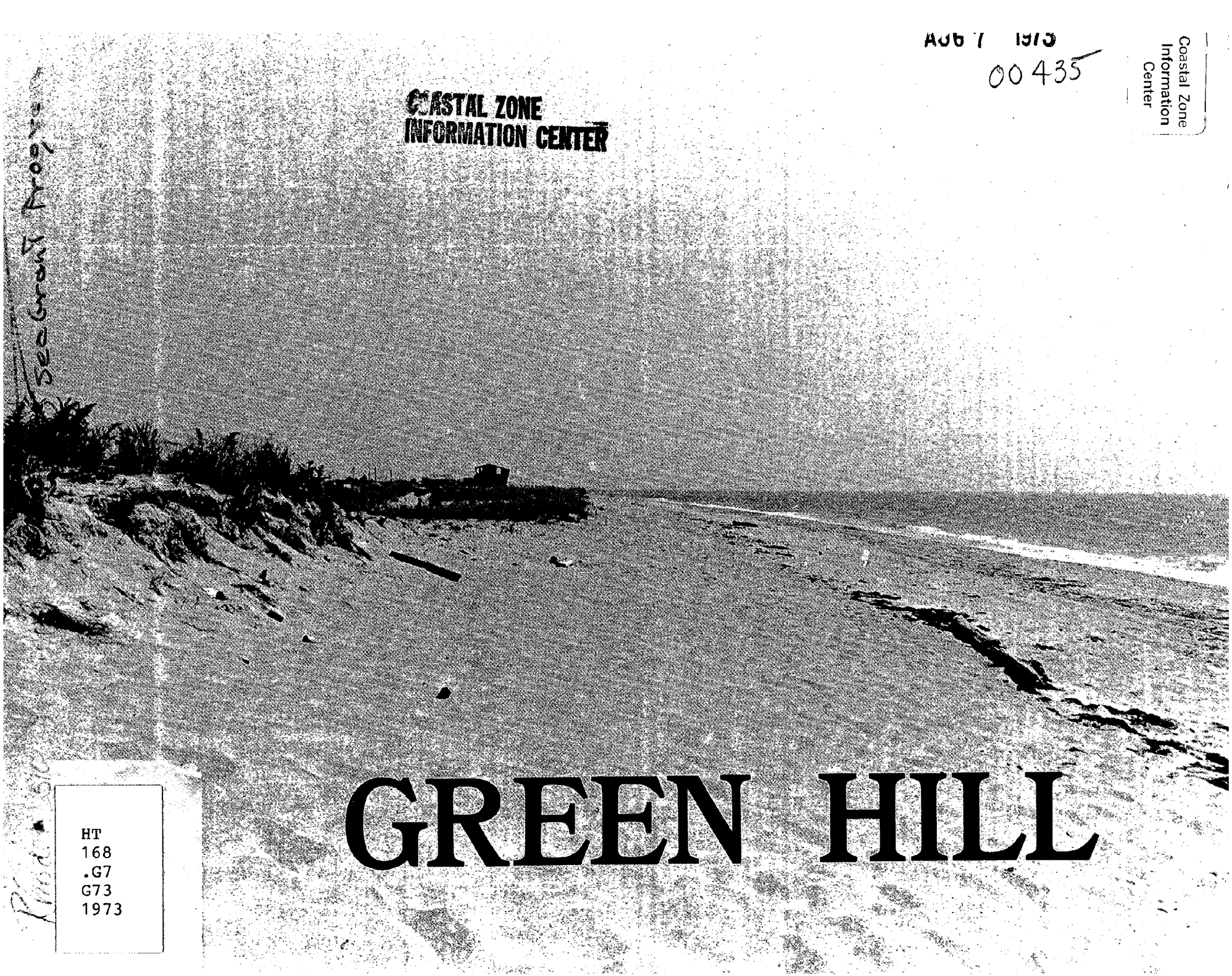
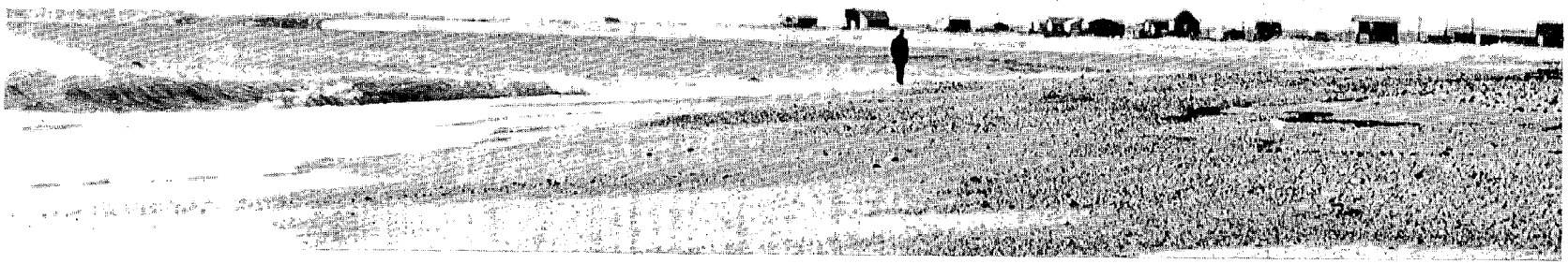


GREEN HILL

GREENHILL: DEVELOPMENT AND A BARRIER BEACH



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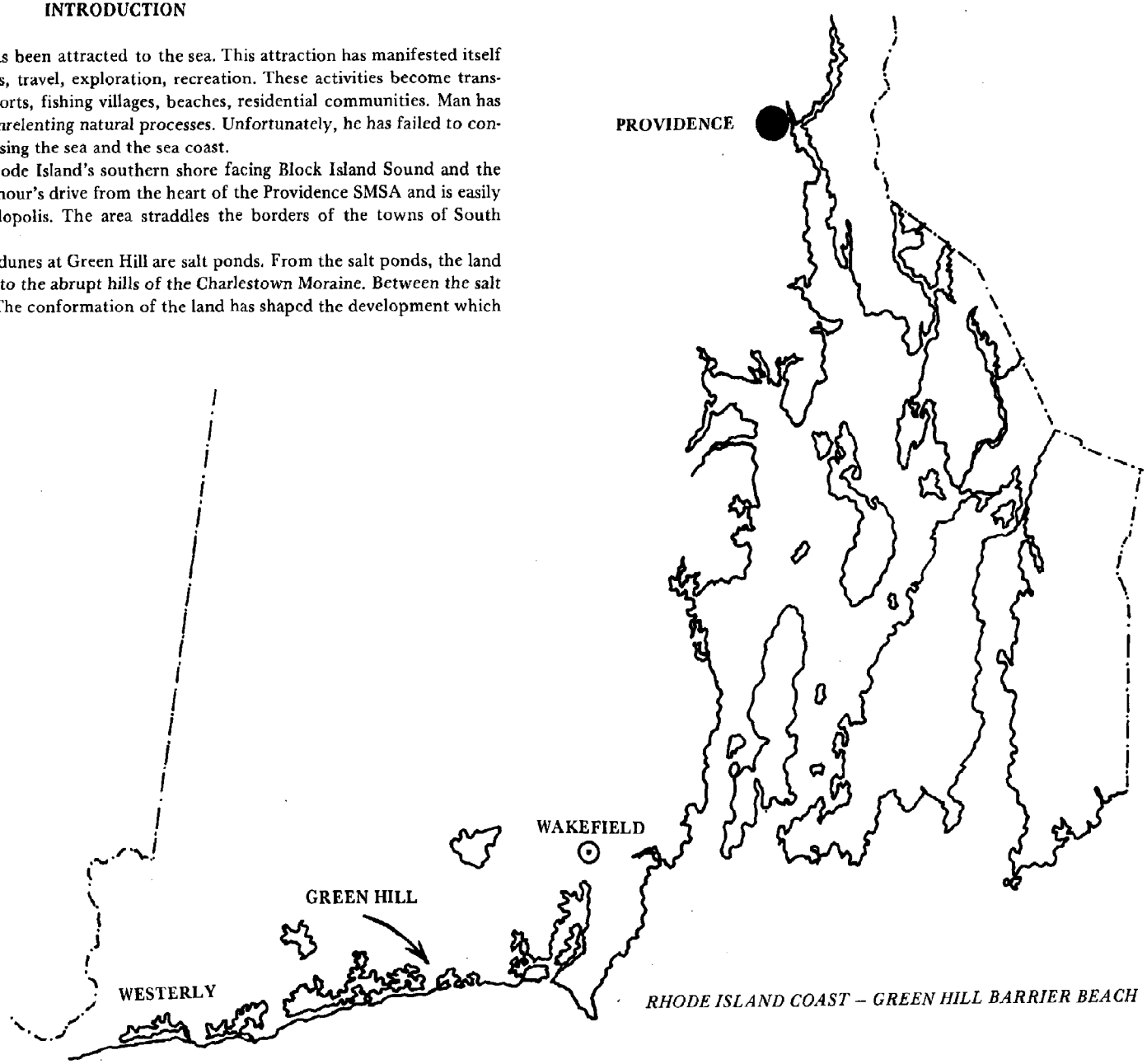
INTRODUCTION

Throughout history, man has been attracted to the sea. This attraction has manifested itself in various ways: marine industries, travel, exploration, recreation. These activities become translated into uses of the coasts—seaports, fishing villages, beaches, residential communities. Man has always been in awe of the sea's unrelenting natural processes. Unfortunately, he has failed to convey this respect to his practice in using the sea and the sea coast.

Green Hill is located on Rhode Island's southern shore facing Block Island Sound and the Atlantic Ocean. It is less than an hour's drive from the heart of the Providence SMSA and is easily accessible to the east coast megalopolis. The area straddles the borders of the towns of South Kingstown and Charlestown.

Behind the ocean beach and dunes at Green Hill are salt ponds. From the salt ponds, the land slopes gently up for about a mile to the abrupt hills of the Charlestown Moraine. Between the salt ponds is land access to the beach. The conformation of the land has shaped the development which has taken place.



RHODE ISLAND COAST – GREEN HILL BARRIER BEACH

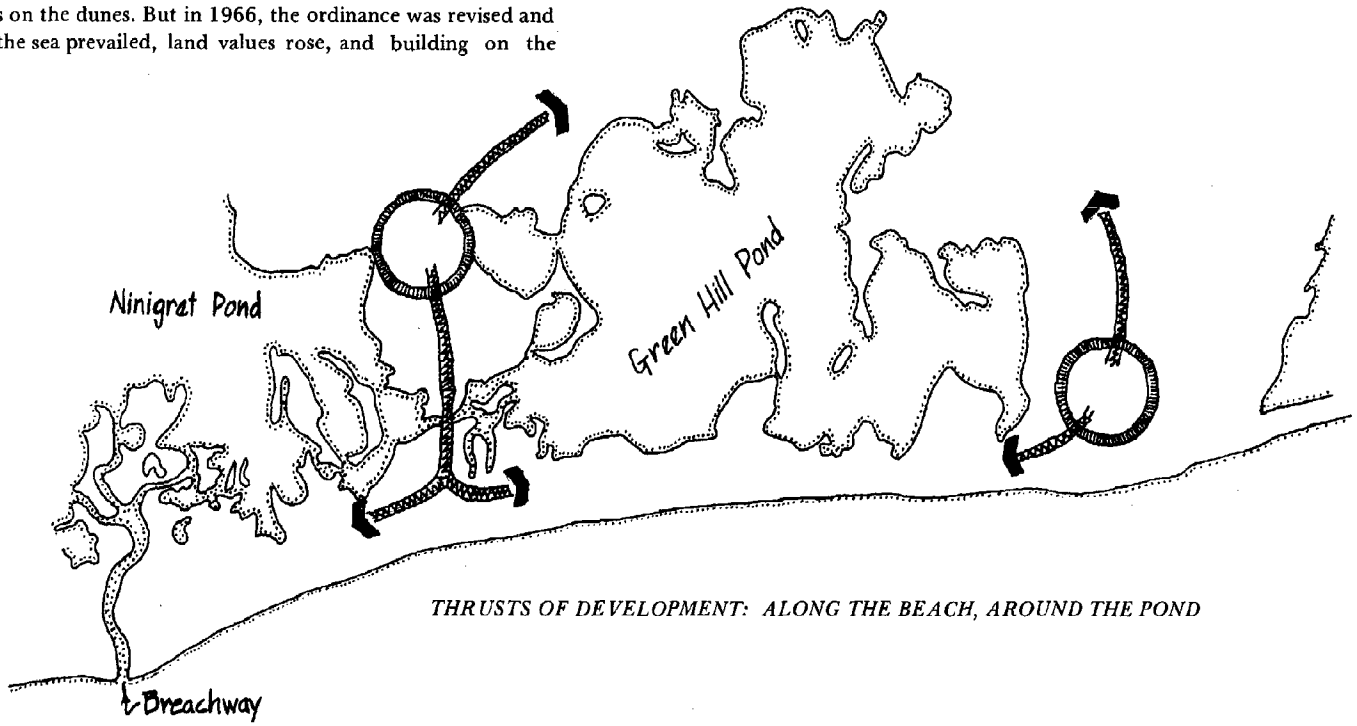
Historically, there have been two forces for coastal development: agriculture on the flat land, and summer recreation both around the ponds and on the beaches. Agriculture began in colonial times; colonial farm houses still stand in fields devoted to potatoes and pastures. Summer recreation development, which began around the turn of the century, concentrates where there is land access to the beach. Interest in Green Hill is regional; many of the homes belong to people outside Rhode Island.

At Green Hill, summer residential development fans out slightly at the beach and turns west along the dune: there is a motel on the inland side and new beach houses—vulnerable to the sea—are perched on top of the dune. This development then bends back inland toward Charlestown, along the edge of Green Hill Pond, mixing with older development as it crowds and surrounds the pond.

In Charlestown, development thins as it nears the beach, where there is a parking lot. Then to the east and west there are houses built on the dunes—six already constructed, and six more under construction push east to meet the construction moving west from Green Hill. Two dozen more line up west on the dune toward the breachway. Two-tenths of a mile from the breachway, residential development ends at State land, on which a small amount of parking is allowed.

The houses being built on the barrier beach are the object of a controversy: an argument among men, and a contest between men and nature. The barrier beach is nothing more than sand dunes on top of a sand beach, forming a barricade which protects the salt pond and low-lying land from assault by the sea. Dune grass keeps the protective dune in place—the roots hold the sand, the blades catch the sand as it blows, and while dune grass can survive in the sand, wind, and salt, it cannot withstand the footsteps of man.

Storms argue against the wisdom of building one's houses on the sand. The hurricane of 1938 left Rhode Island with 317 dead and $1 million in damages; the 1954 storm left 19 dead, 3,800 homes destroyed, and $2 million in damages. For years thereafter, South Kingstown's zoning ordinance prevented the building of homes on the dunes. But in 1966, the ordinance was revised and the prohibition lifted. The attraction to the sea prevailed, land values rose, and building on the dunes recommenced.



THRUSTS OF DEVELOPMENT: ALONG THE BEACH, AROUND THE POND

Recently, however, concerned citizens noticed that the natural beauty and balance of the beach environment were threatened, and that lives and property would again be jeopardized if the building were allowed to continue. In an effort to stem the tide of development, ecologists asked, in 1972, that the South Kingstown Town Council reinstitute flood plan zoning. Owners of beach front property protested that the land was theirs to develop as they saw fit; if their land was to be taken, they demanded due compensation for the loss of their rights.

The Town Council was unable to resolve this conflict, and so turned to the relatively new Rhode Island Coastal Resources Management Council (CRMC). The CRMC obtained a ruling from the Attorney General that the Council had the power to control development on the Rhode Island shoreline. But the construction did not abate. The South Kingstown Town Council then resorted to a moratorium on building permits in the area.

Thus, two forces, development and conservation, are in direct conflict at Green Hill. When they are combined with a third pressing force, the need for recreational facilities within the State, a true controversy begins to unfold. This report seeks a solution to the controversy. It is the result of an objective analysis, which attempts to show:

—the barrier beach system and the type of development it can support, and

—the forces for development of the barrier beach and the type of construction they imply.

A solution to the controversy is suggested, and a plan for implementation of the solution is recommended.

NEW DEVELOPMENT CUTS INTO THE COASTLINE

THE ENVIRONS OF GREEN HILL

CONDITIONS AT THE BARRIER BEACH

PHYSICAL CONDITIONS:

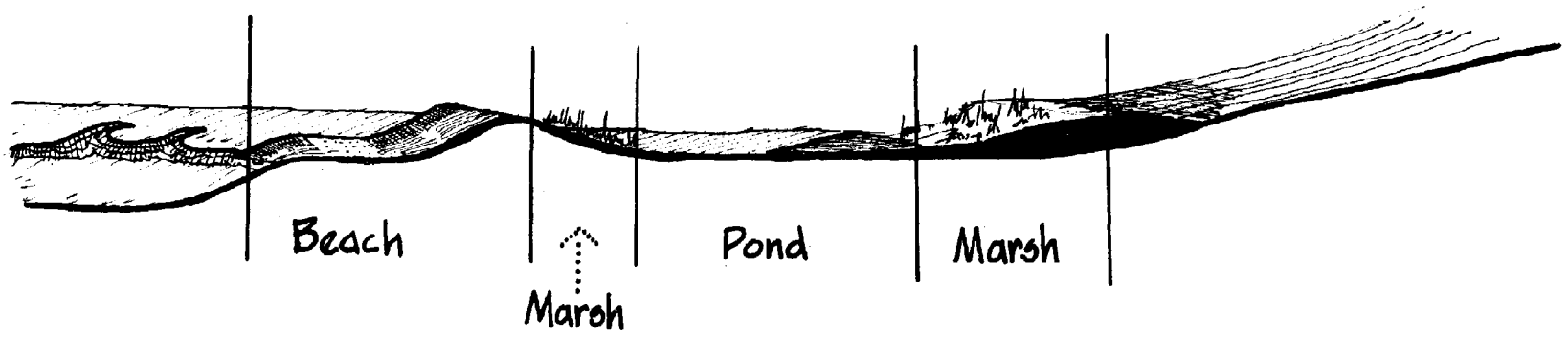
Development does not take place in a vacuum. Whatever happens has an impact on the environment. So in weighing diverse forces for development at Green Hill, it is important to have a basic understanding of its environmental system. The two most important physical characteristics affecting use of the area are:

1) its sensitivity and uniqueness
2) its vulnerability to the forces of storms and hurricanes.

The Green Hill barrier beach is located in a relatively low-lying area of southern Rhode Island. The mainland rises gently from the sea, interrupted at times by depressions reaching six feet below sea level; this gentle slope continues until it reaches the glacial moraine, upon which U. S. Route 1 is built.

While the southern Rhode Island barrier beach system is connected to the mainland at several points, a long stretch of the Green Hill barrier beach is distinctly separated from the land by a tidal marsh and by Green Hill Pond. This pond, with its tidally produced mixture of salt and fresh water, may be considered an estuary. The beach, the marsh, and the pond form a three-zoned, interdependent environmental system unique both in physical appearance and in the life forms it supports. The barrier beach, tidal marsh, and salt pond are delicately balanced; any activity conducted in one zone will have an impact upon the other two zones. The facets of this environment and their relationship to the forces acting upon it are critical.

THE BARRIER BEACH SYSTEM: CROSS SECTION



The Salt Pond:

The salt pond, or estuary, the largest physical area of the three-zone system, is an extremely productive environment. Fresh water nutrients flow into the pond from natural inland drainage systems, while salt water nutrients enter the pond through the Charlestown breachway. The resulting level of salinity and the richness of nutrients encourage the growth of phytoplankton (microscopic plant and animal life upon which larger animals feed). This food supply fosters the production of fish and shellfish, and feeds migratory birds and waterfowl.

At least 35 species of fish are known to exist in Green Hill Pond, including blackback flounder, and striped bass. Shellfish produced in the pond include crabs, softshell clams, and oysters. (It should be noted that the fish and clams make a substantial contribution to the Rhode Island fishing industry).

The salt pond is the habitat of at least nine varieties of waterfowl. Among the most prominent are the Canadian goose, the ruddy duck and black duck.

The Salt Marsh:

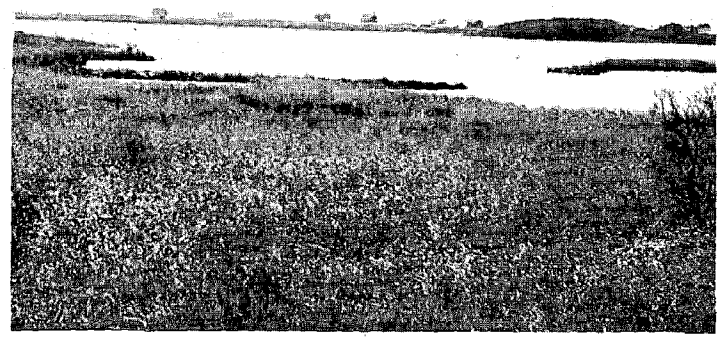
Around the low-lying edges of the estuary exist a variety of grasses and other plant life which form the tidal marsh. The marsh is the source of the largest portion of the productivity of the marsh/pond/beach complex. Gross primary productivity is produced by three major elements: cord grasses (60%), mud algae (30%), and phytoplankton (10%) (Teals, *The Life and Death of a Salt Marsh).* The tidally produced mixture of salt and fresh water in the marsh yields nutrient-rich grasses vital in sustaining a large animal population. As the grasses decompose, they form detritus which is washed into the salt pond and helps to feed the pond's fish life. Some decomposed grasses are also washed out to the sea where they are fed upon by ocean fish.

The most important of these grasses is the "salt marsh cord grass," which grows nearest the water and is most tolerant of sea water. This grass is flooded both at low and high tides.

Beyond, is the "salt meadow cord grass," which is less tolerant of salt water and marks the low tide limit. On the fringe of the marsh, numerous other plants grow, including seaside goldenrod and black rush.

Another highly productive organism is mud algae. Its rapid turnover rate is responsible for its significance in the marsh productivity, since it thereby produces great quantities of nutrients.

In addition to serving as a nursery for many species of shellfish and fish, the Green Hill tidal marsh also acts as a refuge for migratory birds. As in the case of the pond, the tidal marsh contains innumberable mussels, clam worms, and fish and shellfish larvae which sustain these birds.



THE MARSH, THE POND, AND THE BEACH DUNE BEYOND

The Barrier Beach:

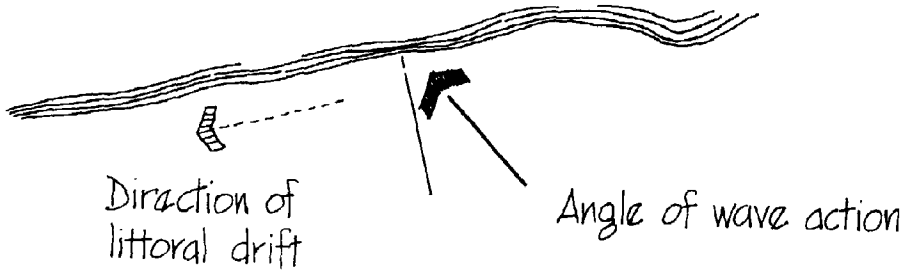
On the ocean side of this salt pond-tidal marsh complex is a naturally formed ridge of loose sand—the barrier beach. The beach and its associated dune form the third zone of this coastal environmental system. Essential to the continued productivity of Green Hill Pond and its tidal marshes is the maintenance of the balance existing between the salt and fresh water. The Green Hill barrier beach, as the buffer and dike between the ocean and the marsh/pond complex, is essential to the preservation of this balance.

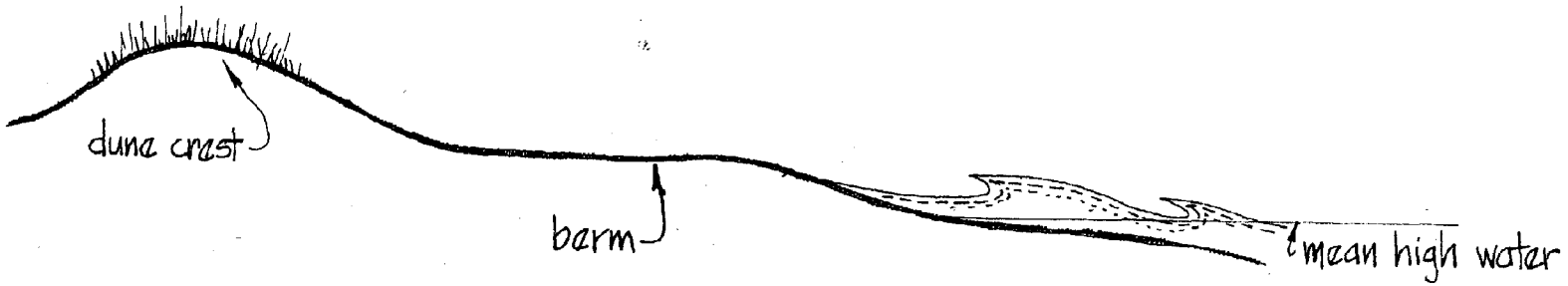
The Green Hill barrier is principally composed of sand which was originally carried to the region by glaciers. Over time, sand was consolidated, by wave action and changes in the sea level, into a long narrow beach parrallel to the general trend of the shoreline.

Sand is brought to the barrier beach primarily through a process known as littoral transport, although a small amount also reaches the beach through the drainage of upland areas into the pond. As a wave moves toward the shore, it reaches a depth of water so shallow that it collapses. Associated with this "breaking" is an underwater turbulence which stirs up bottom sand. By breaking at an angle to the shoreline, waves create a current parrallel to the shore. Sand particles placed in suspension by the turbulence are thus transported longshore by this current in a continuing process of erosion and deposition. At Green Hill, the movement of sand is generally in a westerly direction.

Breaking waves also determine the character of the "beach profile." As shown in the accompanying sketch, the short, steep waves characteristic of winter seas (and of storms generally) tend to erode the beach face and create a steeper, narrower beach. The sand is carried seaward to the edge of the breaker zone where it is deposited in one or more offshore bars. In the summer (and in light weather generally) gentler waves tend to rebuild the beach, redepositing the sand from the offshore bars on to the beach face in a more even manner, thus creating a flat, gently sloping beach profile, with a more widely exposed upper beach face.

SAND MOVEMENT AT THE BEACH





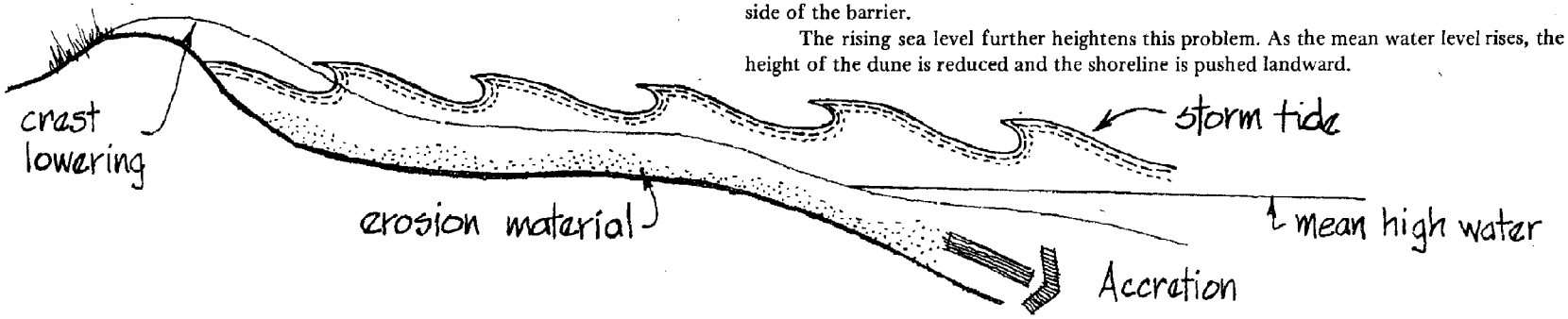
NORMAL WAVE ACTION

THE IMPACT OF WAVES ON THE BEACH

While the barrier beach is formed largely by waves, the dune is created by wind. Sand from the dry upper beach face is picked up by the wind and transported, a short distance at a time, to be deposited at the back of the beach or on an existing ridge, forming a primary dune (foredune), perpendicular to the direction of the prevailing wind. Given a continuing supply of sand and wind, this foredune will migrate slowly landward and become a secondary dune, with the formation of a new primary dune. This process is well-known to any who have driven Route 6 through the Cape Cod National Seashore. Along portions of the highway, it is a constant and losing battle to keep the shifting dunes from encroaching on the road. Clearly visible from the road are the tops of many trees which have been engulfed.

Lack of an adequate supply of sand to the southern Rhode Island coast, including Green Hill, has resulted in the formation of only primary dunes. Many of these are small, with crests well below the stillwater levels of major storm surges, and even further below the heights of storm driven waves. As a result, storm surges often wash and over the crests of dunes, eroding the dune and creating washover fans—delta shaped blankets of sand which cover a portion of the tidal marsh behind the dune. Besides seriously weakening the dune, this process may remove large quantities of sand from the beach-dune system and thus reduce the ability of the dune to rebuild and its capacity to defend against storm action. This is also likely to hasten the landward migration of the beach, as longshore transport is unable to fully replace the material eroded from the seaward side of the barrier.

The rising sea level further heightens this problem. As the mean water level rises, the relative height of the dune is reduced and the shoreline is pushed landward.

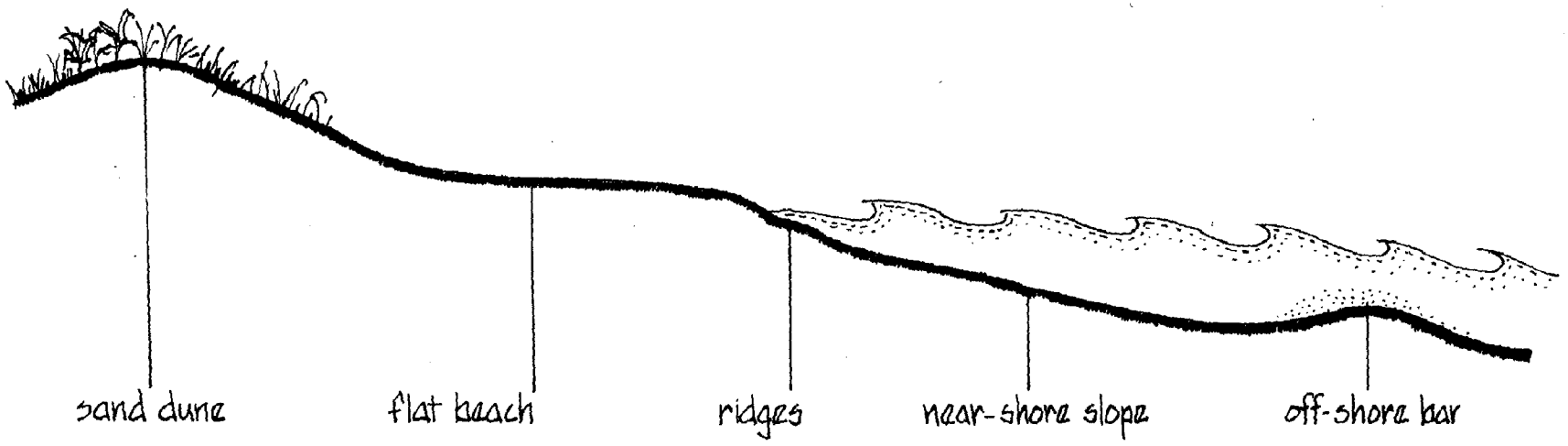


STORM WAVE ATTACK

While the sea waves cause instability in the barrier beach system, nature has provided the barrier beach with a defense against the attack of waves. Offshore bars created by storm or winter conditions cause the larger waves to break well before reaching the beach, thus diffusing the wave energy at some distance from the more vulnerable features. These bars are constructed by wave action in response to storm conditions through the sacrifice of material from the more gently sloping fair weather (summer) beach. Dunes provide an additional reservoir of sand which can be sacrificed to dampen wave action during the more severe storms. Dunes also act as dikes against the high water levels of heavy storm surges, and prevent severe wind erosion in back-dune areas.

Essential to the final stabilizing effect of the sand dune is the dune grass, in this region, the American beach grass (Amphila breviligulata Fernald). The dune grass catches and retains sand which would otherwise be blown away by the wind. By trapping sand particles in its extensive root system and in its broad semi-tubular stems, it stabilizes the dunes, protecting them from all but the most severe storm erosion. Although this plant has adapted to a strenuous environment, it has an important limitation—it cannot withstand any degree of trampling. If plants are thus killed, the wind is likely to erode the dune, forming "blowouts." When these expand, they may seriously endanger the existence of the dune.

THE BEACH AS A DEFENSE AGAINST THE SEA



Impact of Storms:

Severe storms offer striking evidence of the danger associated with permanent building on the barrier beach.

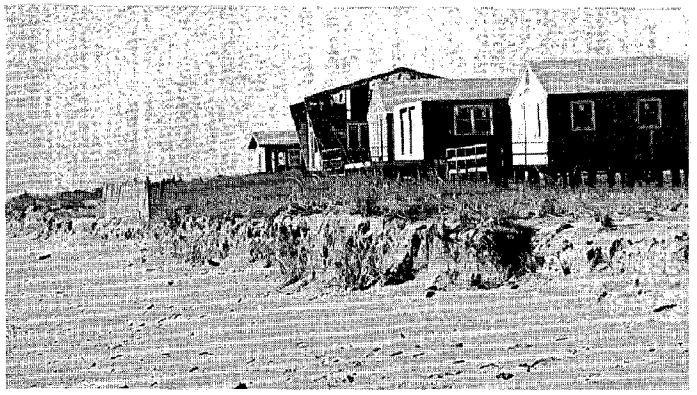
The major effects of coastal storms are largely due to storm surges—rises in sea level—caused by a combination of high winds and low atmospheric pressure—and large waves driven by the high winds. The surge (measured as the "stillwater level," as it would exist without the wave disturbance) results in an abnormally high water level inundating parts of the beach not ordinarily covered by water. Besides destroying weakened portions of the dunes by overtopping and breaching (thus exposing other portions of this environmental system to even greater destruction), the surge may result in danger to human life and severe damage to, if not total destruction of, all structures and utilities in the flooded area. In both the 1938 and 1954 hurricanes, Green Hill beach was subject to surges roughly 12 feet above mean sea level. The dune crest at Green Hill beach is approximately 10 feet above mean sea level. The Corps of Engineers' standard project hurricane, the most extreme considered to have a reasonable likelihood of occuring, approaches 17 feet above mean sea level.

Wind-driven waves associated with such storms increase the damage to structures, endanger neighboring areas by transporting debris for considerable distances, impede rescue efforts, and severely erode shorelines and dunes. While the major impacts of such waves are on the dune and beach areas, flood damage and lesser wave damage can occur in the low-lying areas behind the ponds. Development in such areas is likely to be subject to dangers of wind and wave propelled debris from destroyed beach development, and, if the dune is badly breached or leveled, it may be subjected to nearly the full fury of the storm. The degree of such destruction, thus, is largely a function of the strength of the dune and the character and degree of development on the barrier beach itself.

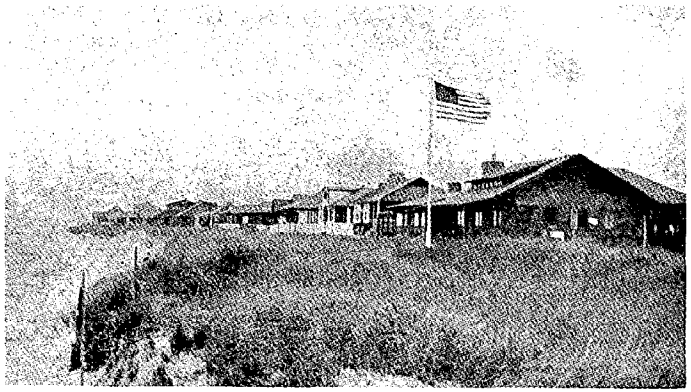
The destructive capabilities of storms at Green Hill can be seen in the accompanying series of photographs. In the first group, the results of a minor storm—November, 1972—are shown.

The second group shows the effects of the 1938 hurricane.

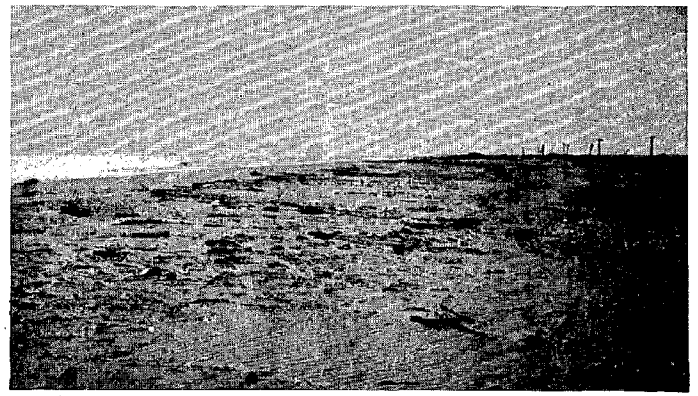
Both in 1938 and 1954 hurricanes are proof of the immense destructive power of the sea. Future development on the Green Hill barrier beach, and behind the ponds, must be considered in light of the severe property damage and loss of human life brought about in 1938 and 1954.



1972 – BEACH EROSION AFTER A SMALL STORM



1938 – BEACH DEVELOPMENT BEFORE THE HURRICANE



1938 – THE BEACH AFTER THE HURRICANE

LEGAL CONDITIONS:

Physical characteristics of the barrier beach militate against certain uses of the area. And man, through his laws and governmental policies, plays another vital role in deciding the use of this area. (A complete legal inventory is contained in the Appendices A-G.)

Out of this study come two key questions. Briefly stated, they are: first, what is the jurisdictional scale, or, who has power over whom, and second, what are the responsibilities of the State and local governments to residents of the barrier beaches? While these two questions are in no way mutually exclusive, for clarity's sake, they are here examined separately.

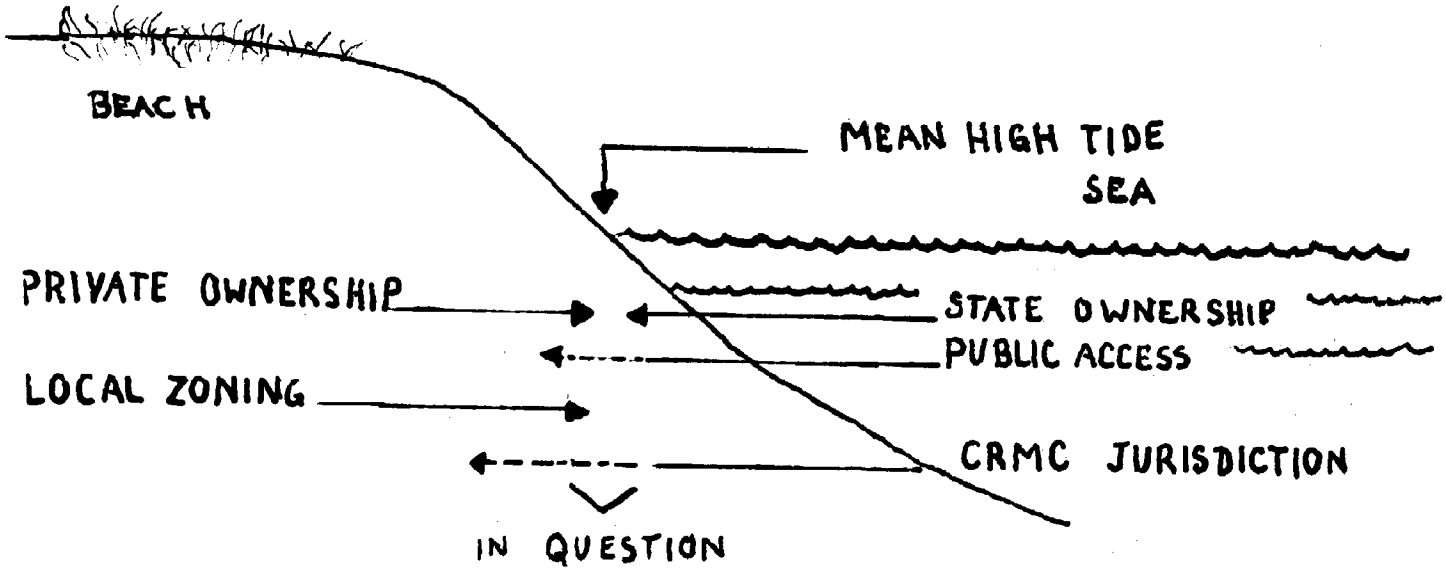
First, what is the jurisdictional scale involved in controlling the barrier beach? Or, who has power over whom in this area? What is the governmental hierarchy?

There are two basic sectors in the coastal zone: below mean high tide, and above mean high tide. In Rhode Island, the State holds legal title to all lands and resources extending from the mean high tide mark seaward for three miles. While the Federal government has reserved jurisdiction over aspects of commerce, navigation, and defense, the bulk of U. S. authority over this area was ceded to the states by the Submerged Lands Act of 1953. Congress reserves the right of preemption over the coast. In an effort to foster national recreational goals, for example, the Federal government exercised these powers in the management of the Cape Cod National Seashore.

The area in the second sector between the mean high tide mark and the vegetation line is somewhat controversial. Riparian owners (owners with land which has at least one border on the water) have exclusive rights to their shoreline, and yet the Rhode Island Law has reserved fishery rights and access to the shore for the general public. These two laws indeed seem to conflict with one another.

In the second sector of the coastal zone, the land area above the vegetation line was, until recently, in municipal and private control. However, recent legislation creating the Coastal Resources Management Council indicates that the State also has interest in land above the vegetation line.

PRIVATE OWNERSHIP VS. PUBLIC CONTROL



Authority exercised over the coastal zone by the State is derived from Article 1, Section 17 of the Rhode Island Constitution. Its original intent was a guarantee of Rhode Island citizens' rights to fishery; however, as amended, it expands its guarantees to the following:

> It shall be the duty of the General Assembly to provide for the conservation of the air, water, land, plant, animal, mineral, and other natural resources of the State, and to adopt all means necessary and proper by law to protect the natural environment of the people of the State, by providing adequate resource planning for the control and regulation of the use of the natural resources of the State and for the preservation, regeneration, and restoration of the natural environment of the State.

The General Assembly used Article 1, Section 17 to pass an Act, in July, 1971, creating the Coastal Resources Management Council (CRMC). The policy statement of this body, although similar to the State Constitution, breaks away from traditional concepts of coastal management by giving to the Council:

> authority over land areas (those above mean high water mark). . . This shall be limited to the authority to approve, modify, set conditions for, or reject the design, location, construction, alteration, and operation of specified activities or land uses when these are related to a water area under the agency's jurisdiction.

A legal controversy at Green Hill centers around the authority of the Coastal Resources Management Council to regulate development along the barrier beach. The CRMC issued "cease and desist" orders to all homes being constructed which have not had at least the pilings driven into the sand. The homeowners have challenged the constitutionality of the CRMC's right to give such orders, and, until the issue is formally resolved in the courts, the State's Attorney General has indicated in an Opinion that the CRMC does have the power to issue cease and desist orders prohibiting further residential development on Green Hill Beach.

The Rhode Island Department of Natural Resources (DNR) also has a regulatory role in the coastal zone. The Intertidal Salt Marshes Act requires the DNR to issue permits for any alteration of the ecology of intertidal salt marshes (of which Green Hill Pond is one). The DNR also exercises regulatory power under the Coastal Wetlands Act of 1966, which calls for rulings against any development which might reduce the protection of life and property from flood, hurricane, and other natural disasters.

The Town of South Kingstown, with its Town Council form of government, relies almost solely on zoning as its mechanism for regulating land use. The State enabling legislation gives the town power to regulate and restrict land uses, provided it does so on a uniform basis. The primary purpose of the zoning is "to promote health, safety, morals, or the general welfare of the town." Although, technically, the zoning ordinance is required to conform with the Town Comprehensive Plan, this is not the formal practice in Rhode Island. This is particularly noticeable at Green Hill where the whole area is designated in the Comprehensive Plan as either "open space" or "recreation," and yet is zoned as a residential area.

A chronology of South Kingstown's legal involvement illustrates the administrative confusion which has plagued this area. In 1965, South Kingstown adopted a Comprehensive Plan, which designated the Green Hill area as open space or recreation use. This conformed with the zoning regulations of that year, which designated the area as a flood plain, unfit for residential development. In 1966, the flood plain zoning was dropped, and the area became zoned for residential development—R-10, the second smallest single-family residential lot size allowed by South Kingstown zoning. Plot lines were drawn, parcels were sold, and construction began. In 1972, the town, sensing that the development had the potential of becoming uncontrolled, put a moratorium on residential development.

On the one hand, the Comprehensive Plan, the moratorium on building permits, and overtures to the Department of the Interior seem to indicate an opposition to development. On the other hand, the original issuance of building permits, the zoning ordinance, the recent enlargement of building lot sizes on barrier beaches, and the revisions in the building code all tend to indicate a program of residential development in the area. The policy of the South Kingstown Town Council is unresolved.

In any case, the State exercises ultimate control over the coastal zone directly through the CRMC, and indirectly through the Department of Natural Resources. The town, through its zoning ordinance exercises control over land within its boundaries, but is subordinate to the State in regulation of the coastal zone. In effect, a "double veto" system exists, in which both the State and the town must cooperate in determining the land use of the coastal zone, but the State holds final jurisdiction.

Second, what is the responsibility of State and local government to those of its citizens who have been permitted to develop the beach?

The primary purpose of the local government, according to the zoning ordinance, is to provide for the "health, safety, morals, or the general welfare of the town." This traditionally includes the operation of a local school system, maintenance of the local transportation services, and provision of police and fire protection.

In a zone which is regularly threatened by natural disasters, such as hurricanes, and specifically in a barrier beach, the town has a legal and moral responsibility to provide for the safety of any inhabitants who have been officially allowed to locate there. The key to this responsibility is the zoning ordinance, through which the town has the power to regulate or prohibit development on a barrier beach if it deems such development to be unsafe. Once inhabitants have been allowed to locate on the beach, the town is obligated to provide rescue and relief services, should they become necessary.

Given the predictable destructive capability of 75 and 100-year storms, combined with the facts concerning the destruction caused by the hurricanes of 1938 and 1954 (such as the deaths of policemen conducting rescue services), it is evident that the town would incur a major responsibility, both financially and ethically, by allowing any type of permanent residential development on Green Hill Beach.

GOALS AND OBJECTIVES

General goals pertaining to development in the area arise from a synthesis of the diverse forces for development, the physical conditions, and physical and legal constraints. These goals, when considered from the perspective of the governments and the individuals involved, yield a number of more specific objectives.

Barrier beaches are, as the description of physical conditions showed, sensitive to development. It also should be noted that they are relatively rare. Of the 419 miles of shore line in Rhode Island only 21 miles are barrier beach, and development has taken place on about half of these 21 miles. The uniqueness, the vulnerability, and the beauty of barrier beaches dictate that their conservation be the primary goal.

Increases in population, coupled with increased leisure time and increased mobility, will result in the need for more public recreation areas. The supply of land suited to recreational activities is limited. An increasing share of the coastal region must be devoted to recreation. Recreation, therefore, becomes a secondary goal.

Residential development can be accommodated on many varieties of land. The beach, however, due to its sensitivity and the danger of storms, is a poor location for residential development. The attraction of the sea only slightly diminishes when building is moved inland, to safer ground, and access to the beach is preserved. With regard to the barrier beach, meeting residential demand has thus been ruled out as a desirable goal.

SPECIFIC GOALS

State:
—To preserve the beach for recreational and conservation use, with the aim of fostering tourism and recreational development,
—To plan for the use of the coastal zone by coordinating the different interests affecting use of the area,
—To preserve public access to the shore,
—To guarantee the rights to fishing (recreational and commercial),
—To ensure that development conforms to health standards,
—To protect water resources,
—To provide relief in case of disaster (to prevent disaster, if possible),
—To keep the public informed of coastal zone resources.

Town:
—To preserve the area in a natural state,
—To qualify for Flood Plain Insurance protection by planning for and limiting development,
—To maintain the tax base with respect to the area.

Property Owners Near The Beach:
—To protect their investment by seeing that the beach remains in a natural state,
—To qualify for flood plain insurance by seeing that residential development does not occur on the beach.

Property Owners On The Beach:
—To protect their investment by ensuring that their land is "buildable," thus preserving the maximum property values.

Fishing Industry:
—To ensure that marine life in the Green Hill Pond is not adversely affected by beach development.

Conservationists:
—To prevent the despoilation of what is considered a "unique natural area."

POSSIBLE PATTERNS OF DEVELOPMENT

GENERATION OF ALTERNATIVES:

Alternatives are generated by projecting combinations of the three forces through the conditions affecting the barrier beach to portray their eventual outcomes.

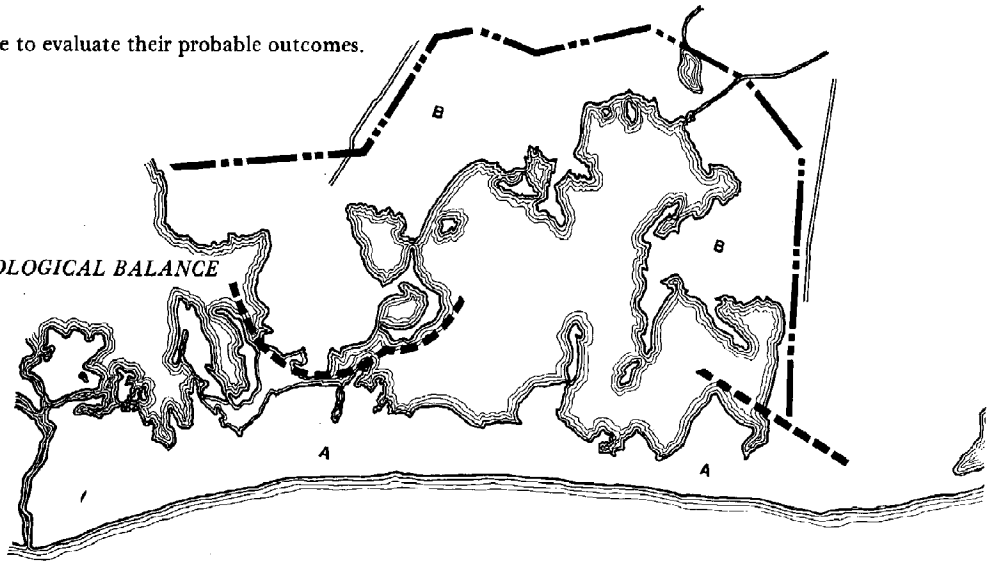
Forces for conservation, recreation, and residential development are in conflict at Green Hill; these conflicts can be resolved in various ways. The descriptions of physical and legal conditions have described the factors which, through their friction and interaction, will eventually dictate the outcome. Some possible combinations of forces would place further strains on the environment; others would impose greater expenses on the taxpayer.

The forces for total conservation and preservation generate a *strict conservation* alternative, while the forces for recreation and public access temper this to a *limited public* type of development. The present residential construction, representing the private interests of a select group of residents, balanced with the conservation interests yield a *limited private* development. *Mixed public/private* development is an accommodation of both private and public interests in the use of the barrier beach. Finally, the continuance of present development patterns without further restraints can be labeled *uncontrolled development.*

After these various configurations are defined, an attempt can be made to evaluate their probable outcomes.

STRICT CONSERVATION TO PRESERVE NATURAL BEAUTY AND ECOLOGICAL BALANCE

A - No Development Zone B - Restricted Development Zone



GREEN HILL BARRIER BEACH

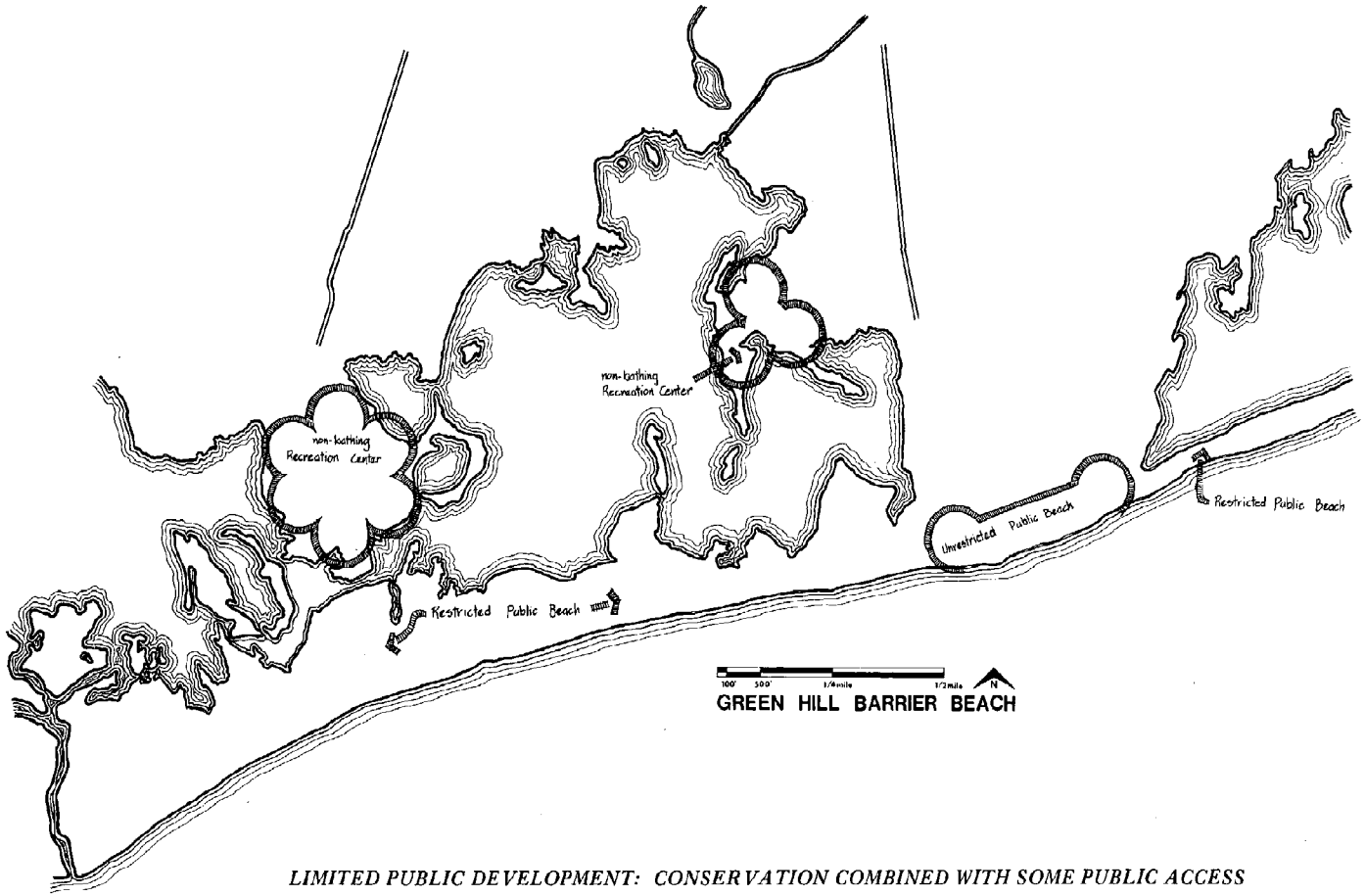
1 — Strict conservation:

This alternative has been developed with the sole intent of conserving the natural beauty, ecological balance, and environmental quality of the barrier beach, salt pond, and marsh. Two special zones have been envisioned. The first zone, a "no development" zone, would run from the Green Hill Beach Club to state-owned Charlestown Beach. Beach areas now privately owned would be acquired, by a public conservation agency, such as the Audubon Society. Existing development, utilities, and roads would be removed from the barrier beach. No inducements for use of the beach, such as parking lots or access roads, would be permitted. On the beach, barriers to such traffic as dune buggies would be installed if necessary.

The second zone, a flood plain zone, would be established to restrict further development around the fringe of the salt pond. Regulations pertaining to minimum lot size and sewage disposal could be used to implement this type of regulation. In order to achieve the goals of this alternative, the Town of South Kingstown would also have to extend sewer lines to existing residences to prevent contamination of the pond. Beyond these two special zones, the normal town zoning ordinance would remain in effect.

2 – Limited public:

This alternative combines conservation with some public access, and implies public acquisition of the area. (See Diagram 2) In addition, certain vacant or non-utilized areas on the back fringe of the pond could be acquired for development as recreation areas. Use inimical to the environment would have to be eliminated; some building would have to be removed. Environmental factors, the major determinants of use in this alternative, would prohibit large scale, unrestricted public use. Access could be limited by the size of parking facilities and by controlled admission. Properly located recreational uses, service facilities, and administrative structures, however, would be allowed.

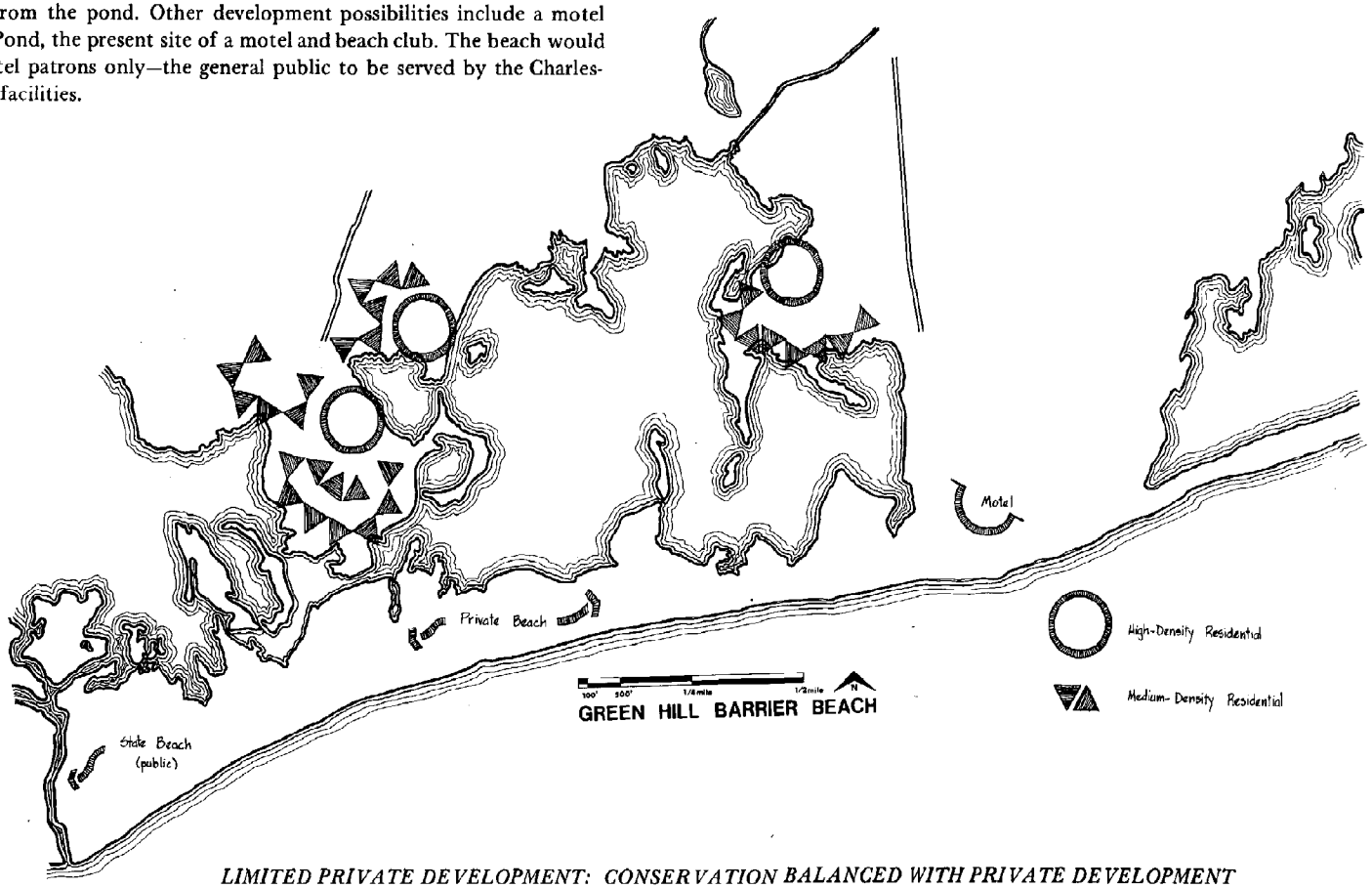


LIMITED PUBLIC DEVELOPMENT: CONSERVATION COMBINED WITH SOME PUBLIC ACCESS

3 – Limited private:

Limited private development would attempt to balance conservation with the acknowledged pressure for private development in the area. Year-round and seasonal residences, motels, and beach clubs would be allowed, although development would be carefully regulated to protect the environment. This could be accomplished through the use of cluster zoning, and restrictive convenants requiring the developer of the property to maintain the beach and pond areas.

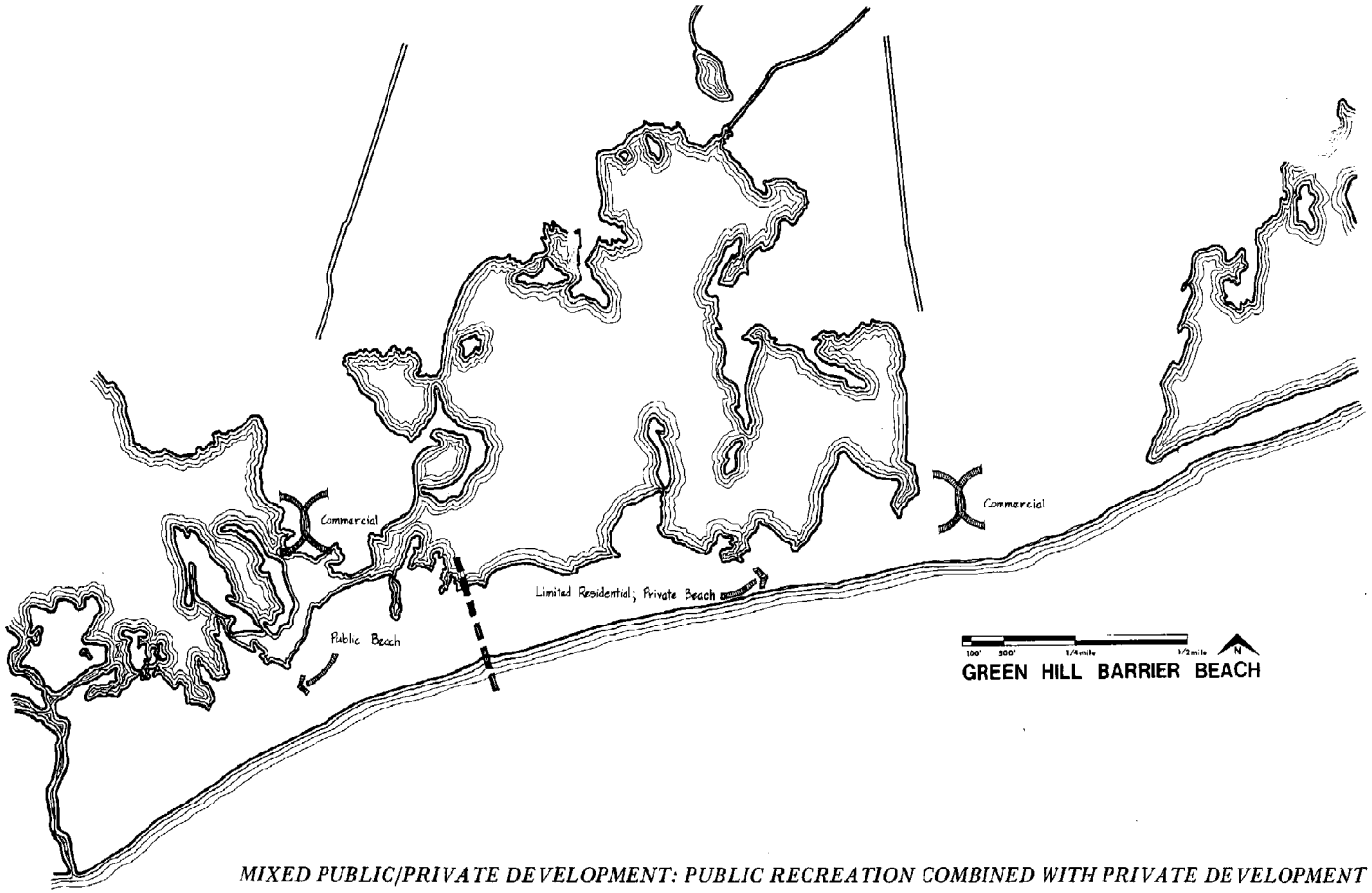
The design would involve several high density residential development nodes on the inland side of Green Hill Pond (Diagram 3), single-family, semi-detached townhouses and garden apartments near the pond, and multi-story apartments set back from the pond. Parking for the residences would be located away from the pond. Other development possibilities include a motel between Green Hill and Trustom Pond, the present site of a motel and beach club. The beach would be reserved for residents and motel patrons only—the general public to be served by the Charlestown State Beach and other state facilities.



LIMITED PRIVATE DEVELOPMENT: CONSERVATION BALANCED WITH PRIVATE DEVELOPMENT

4 – Mixed public/private:

This concept balances public recreation and private development demands by allowing both uses on the beach. Some residential construction would continue, controlled through the use of flood plain zoning and minimum lot sizes. Parts of the beach could also be publicly acquired to guarantee public access (Diagram 4). Environmental quality could be maintained by town extension of sewer lines to the beach development. In this case, no controls or design proposals would be applied to the area behind the pond.

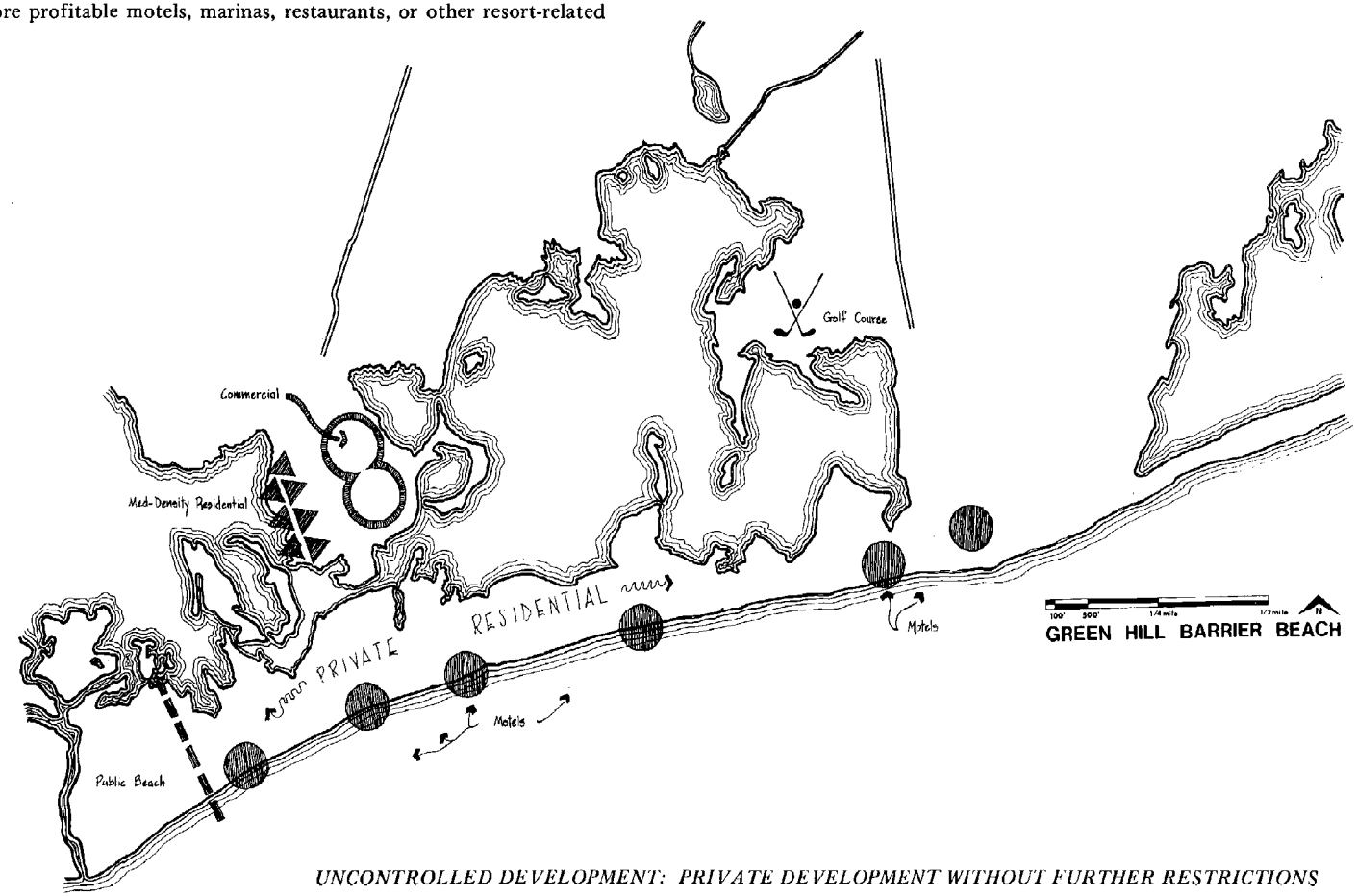


MIXED PUBLIC/PRIVATE DEVELOPMENT: PUBLIC RECREATION COMBINED WITH PRIVATE DEVELOPMENT

5 — Uncontrolled development:

At the present time, the residential pressure on the Green Hill area is very strong. The uncontrolled development alternative projects the consequences of this force continuing in its present path. In this case, current restrictions on the area would not be expanded.

Current platting could accommodate 208 single-family houses. Residential use alone could result in commercial development such as gas stations, small retail stores, improved roads, and perhaps even a shopping center, to be located near the beach area. Developer plans, however, might combine residential use with more profitable motels, marinas, restaurants, or other resort-related uses.



UNCONTROLLED DEVELOPMENT: PRIVATE DEVELOPMENT WITHOUT FURTHER RESTRICTIONS

SELECTION OF ONE ALTERNATIVE:

The alternatives are five possible outcomes of the conflict at Green Hill; each has its own validity and its own limitations. However, the optimal outcome, an equitable resolution to the conflict, should be sought. The method of evaluating the alternatives to select the optimal consisted of the following:

—identifying general assumptions about the future to form a basic framework within which to conduct the analysis;

— considering cost/benefit implications for each alternative;

— refining the results of the first two steps to form specific evaluation criteria.

General assumptions about the future:

A plan for the barrier beach at Green Hill must take into account the prospects of the area and the State. The following assumptions are based in part on the 1990 State Land Use Plan, 1972 Rhode Island Economic Statistics, and the Plan for Recreation, Conservation, and Open Space:

—Rhode Island population will increase moderately, according to current projections, for the next twenty years.

—Shore area communities will continue to increase in population at a faster rate than inland communities.

—Shore area land values will continue to skyrocket, making large scale acquisition more expensive.

—Demand for beach-oriented recreation activities will increase at a faster rate than population, because of spillover from other states, increased promotion by the Rhode Island Development Council, and increases in available leisure time.

—The property tax will remain for at least five years as the primary source of local revenue. As such, local land use planning will remain highly susceptible to land speculation (particularly in areas endowed with natural amenities).

—The Route 1 by-pass around Westerly, along with the Route 4 extension in South County will make southern Rhode Island more accessible to tourists from Connecticut, and residents of the northern parts of the state.

—A state land use policy is 18-24 months away.

The alternatives are weighed by comparing the costs and effectiveness of each. The optimal resolution maximizes beneficial effects, while it minimizes costs. Probably the conflict cannot be perfectly resolved, but the implications of each alternative must be reviewed.

ALTERNATIVE 1: STRICT CONSERVATION

Costs	Effects
General Public	
Land acquisition costs, demolition costs, cost of reimbursement to those prevented from developing their properties, cost of fences and personnel to enforce restrictions on beach use, loss of use of beach by existing property owners.	Successful preservation of a unique area in its natural state, enhancement of R.I.'s image as a planned state with a balance between development and conservation, land owners near beach increase the value of their investments, floodplain insurance available at rear of beach.
Local Government's Finances	
Loss of existing tax revenues and limits on opportunities to increase tax base in area, sewer installation costs for the no-development zone around pond.	Disaster relief costs lowered, development channelled into areas less expensive to service, town's attractiveness to developers increases due to a large tract of aesthetic open space.
Business Interests	
Financial loss for some realtors and contractors.	An important resource preserved for local fishing industry.
Political Implications	
A strain placed upon Rhode Island's financial resources for acquisition, compensation, and maintenance costs.	Enhancement of Rhode Island's image as 'The Ocean State' attracts additional tourist dollars, enhancement of Coastal Council's prestige, goals of state plans for recreation and open space in area partially achieved.

ALTERNATIVE 2: LIMITED PUBLIC DEVELOPMENT

Costs	Effects
General Public	
Land acquisition costs, demolition costs, cost of reimbursement to those prevented from developing their shore property, costs of preparation of the area for a new use, landscaping and public facilities, personnel, loss of use of the beach by existing property owners.	Preservation of a unique area in a nearly "natural" state, enhancement of Rhode Island's image as a place for recreation, public access to shore increases, property owners near beach stabilize the value of their investments, floodplain insurance available at rear of beach, user fees could negate personnel and maintenance costs.
Local Government's Finances	
Loss of existing tax revenues and limits on opportunities to increase tax base in area.	Disaster relief costs lowered, development channelled into areas less expensive to service, town's attractiveness to developers increases due to proximity of public recreation areas.
Business Interests	
Financial loss for some realtors and contractors.	Financial gain for some landscapers and contractors, additional tourist and contractors, additional tourist dollars attracted to area, an important resource preserved for local fishing industry.
Political Implications	
A strain placed upon Rhode Island's financial resources due to initial acquisition and compensation costs.	Enhancement of Rhode Island's image as 'The Ocean State' attracts additional tourist dollars, enhancement of Coastal Council's prestige, goals of state plans for recreation and open space achieved.

ALTERNATIVE 3: LIMITED PRIVATE DEVELOPMENT

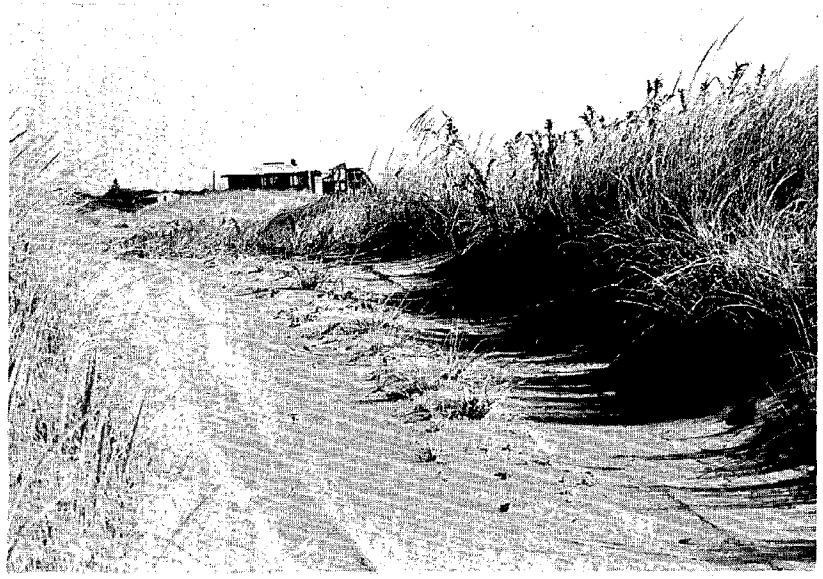
Costs	Effects
General Public	
Access to shore decreases, area faces ecological danger, land owners near area may lose some value on their investments, floodplain insurance not available.	Small section of public enjoys beach use, land values on beach increase.
Local Government's Finances	
Disaster relief costs rise, public service costs rise, town's attractiveness to developers decreases as it loses aesthetic open space.	Existing tax base remains and increases.
Business Interests	
An important resource of local fishing industry endangered.	Additional summer resident dollars spent in area, financial gain for realtors and contractors.
Political Implications	
Rhode Island criticized for allowing ecologically unfavorable development, goals of state plans for recreation and open space not achieved.	State free to invest recreational-ecological funds elsewhere.

ALTERNATIVE 4: MIXED PUBLIC/PRIVATE DEVELOPMENT

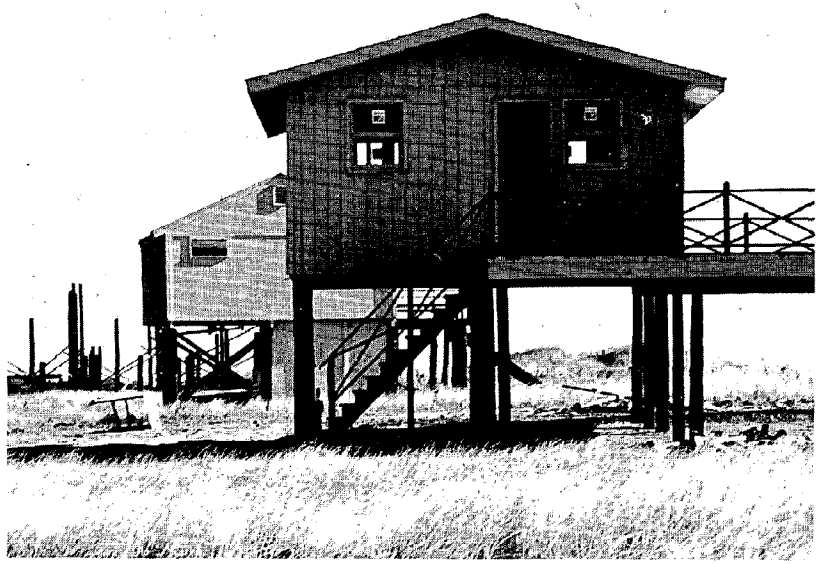
Costs	Effects
General Public	
Some small land acquisition costs, cost of reimbursement to those prevented from developing their property, cost of new beach-user facilities, considerable danger that a unique natural area may be permanently damaged, increased noise and congestion in area, flood plain insurance not available.	Some enhancement of Rhode Island's image as a place for recreation, user fees could offset costs of beach maintenance, additional housing available in area.
Local Government's Finances	
Increase in demand for public services, disaster relief costs increased.	Tax revenue to the town from the area increases.
Business Interests	
Fishing industry suffers due to disturbance of foodchains in adjacent and nearby ponds.	Increase in number of tourists and summer residents makes business flourish. Some new business opportunities appear, financial gains for realtors and contractors.
Political Implications	
State's image suffers from veering far from ecological policies, CRMC seen as ineffective.	State recreation plans, goals for area partially achieved. State free to invest ecological funds elsewhere.

ALTERNATIVE 5: UNCONTROLLED DEVELOPMENT

Costs	Effects
General Public	
A unique natural area probably destroyed, public use of shore severely limited, floodplain insurance not available, much congestion and noise in area, decrease in recreational land available to public.	Value of land holdings in area will greatly increase, availability of housing on and near beach will greatly increase, additional tourist dollars will be brought to state to help stabilize tax rates.
Local Government's Finances	
Road improvements needed, strain will be placed on existing school, fire, and police protection systems, disaster relief costs very high.	Large increase in tax revenues for the town from the area.
Business Interests	
An important resource of local fishing industry severely impaired.	Large financial gains for realtors, contractors, and speculators, all of town's businesses stimulated, especially during summer, market can accommodate many new businesses.
Political Implications	
State criticized for allowing destruction of a unique natural landmark, CRMC discredited, state recreation and open space plans for area abandoned, local master plans and zoning regulations circumvented.	Significant rise in number of tourist dollars attracted to state, state free to invest recreational-ecological dollars elsewhere.



THE PATH OF DEVELOPMENT



Decision criteria:

Evaluation of the forces, conditions, and goals involved in the Green Hill conflict was made even more complex by the lack of an existing set of defined priorities for the area. Based on the salient factors from the inventory and the economic trade-offs, a set of decision criteria was derived against which the alternatives were evaluated. In order of priority, the decision criteria are the following:

1) Unique, vulnerable natural areas should be protected to the greatest extent possible.
2) Jurisdiction of the coastal zone should be at the State level, and, as such, the decision for the type of development should weigh heavily on the following two State goals:
—public access to the beach should be encouraged but not to the extent to which it harms the ecological balance of the beach complex.
—shoreline development should be evaluated for impact on total shoreline and on surrounding inland areas.
3) The town, through its zoning ordinance, assumes responsibility if it allows development on the barrier beach.
4) Long-term rather than short-term economic gains should be considered when costing out alternatives.

Selection process:

In evaluating the five alternatives (strict conservation, limited public, limited private, mixed public/private, and uncontrolled development) against the decision criteria, the importance of the barrier beach's designation as a unique, vulnerable natural area served to weigh criterion 1 very heavily. As a consequence, the uncontrolled development alternative was eliminated from further consideration, since this scheme endangered the delicate ecological balance most directly.

Public access, the second most critical criterion, when considered against the other alternatives, is optimized by the limited public and mixed public/private development schemes, while it is excluded by private development or strict conservation. The limited public development is particularly satisfactory for public access. When considered in terms of the State goal of developing the shoreline for open space/recreational purposes, this alternative is attractive.

The third decision criterion, the town's responsibility for the safety of its residents, is persuasive in eliminating all overnight development from the beach; the mixed private/public alternative is therefore untenable.

Finally, although limited public development requires greater expenditure of public funds to cover acquisition costs, facilities, and management; long-term benefits will accrue to the State and the region as a result. The dangers of development are avoided, and a balance can be struck between conservation and recreation. Thus, the limited public alternative was judged to be most equitable and desirable.

LIMITED PUBLIC DEVELOPMENT: A SOLUTION

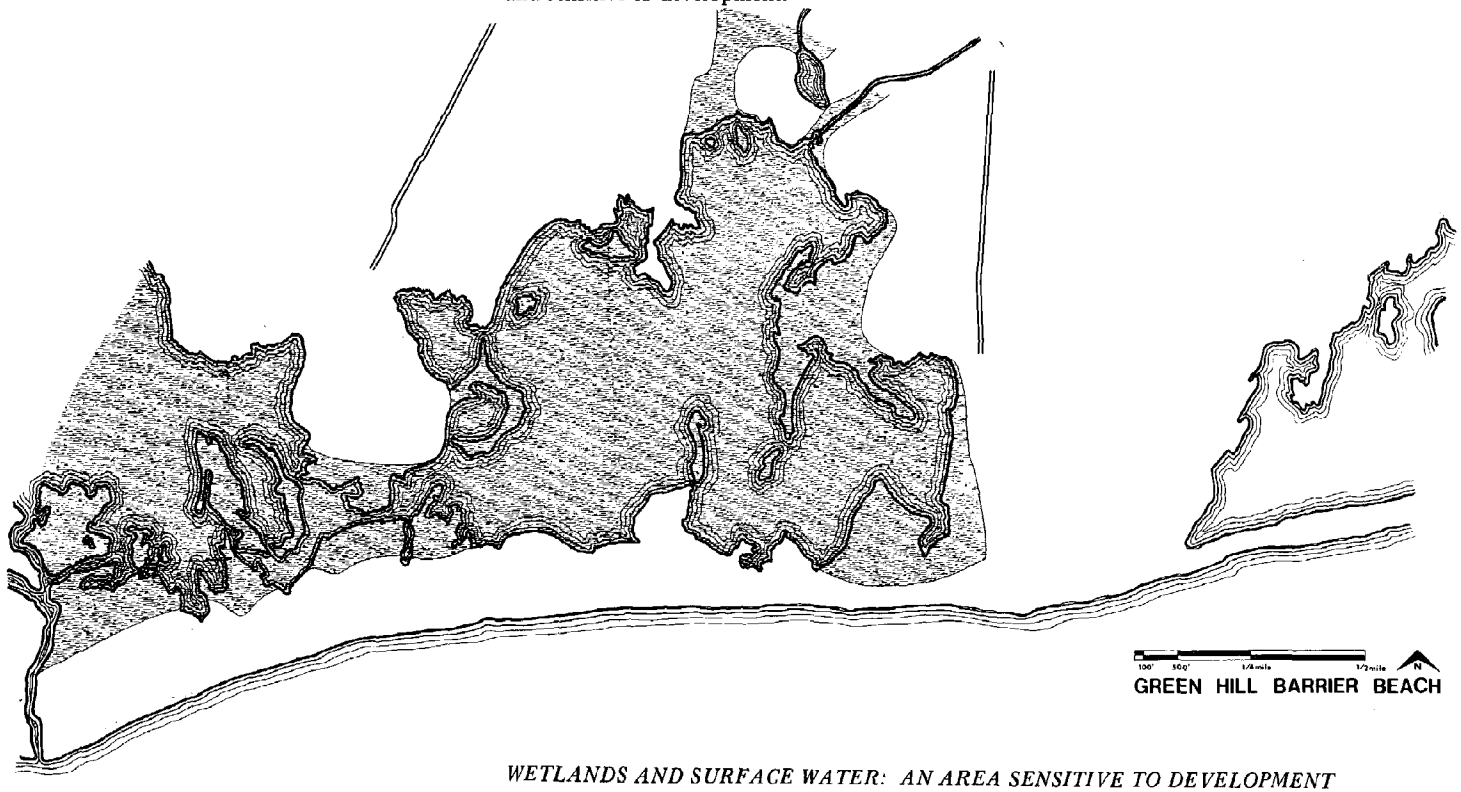
Implicit in the idea of "limited public" development are certain factors which shape the design. These "design criteria" are:

1) the preservation of the natural environment, and
2) the provision of public recreation.

Recognition of these criteria is not sufficient; they must shape specific aspects of the physical design.

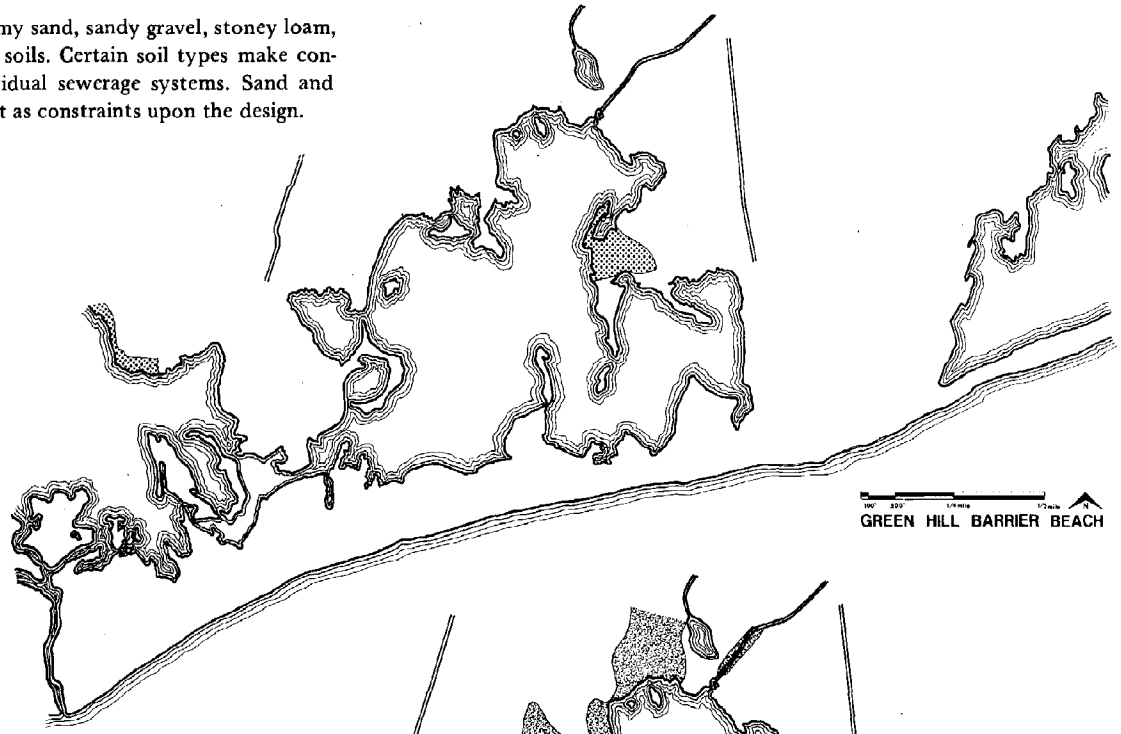
Preservation of the environment is facilitated by prohibiting development in areas which are especially sensitive to man-made intrusions. Topography, bedrock geology, ground water, wetlands, surface water, flood plains, soil types, vegetation, and wild life all affect an area's capacity to sustain development. When these features are precisely located, the design can be built around areas that can sustain development. Areas which cannot support development are avoided.

Wetlands and surface water areas include organic swamps, mineral swamps, bogs, and surface and tidal waters, which are crucial parts of the natural food cycle of commercial fish and shellfish, and sensitive to development.



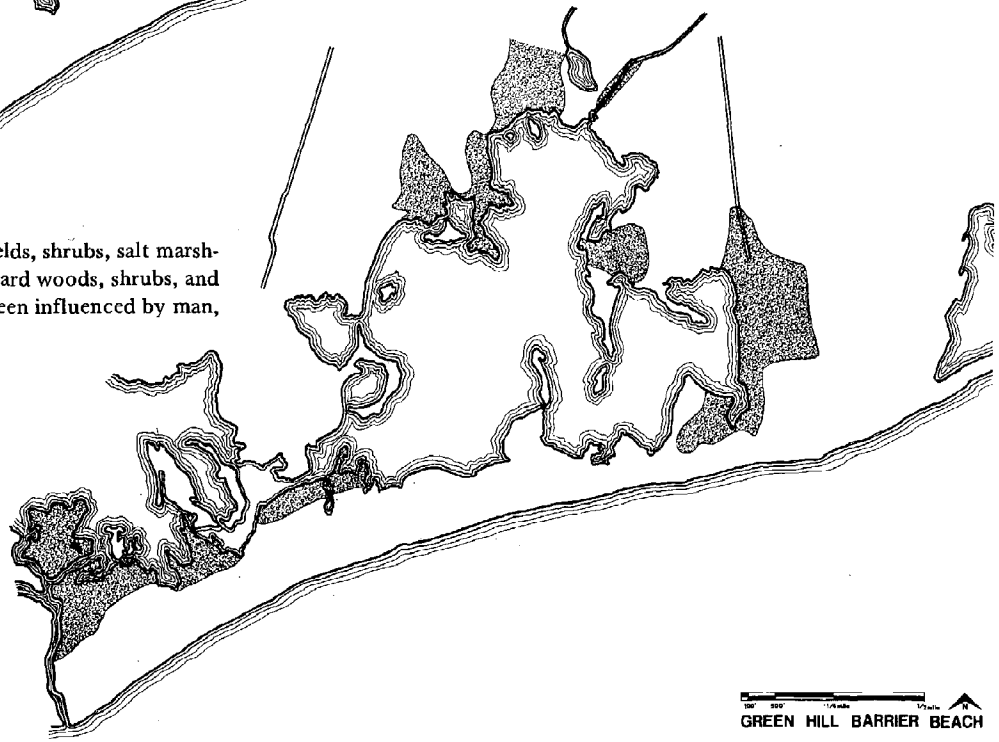
WETLANDS AND SURFACE WATER: AN AREA SENSITIVE TO DEVELOPMENT

Soil types in the Green Hill area include sandy loam, loamy sand, sandy gravel, stoney loam, silt loam, manipulated (filled) land, sand, muck, and variable soils. Certain soil types make construction difficult, and some types preclude the use of individual sewerage systems. Sand and muck, in particular, do not readily support development and act as constraints upon the design.



SOIL TYPES NOT READILY SUPPORTING DEVELOPMENT

Vegetation in the area includes softwoods, hardwoods, abandoned fields, shrubs, salt marshes, agriculture, and urban vegetation. The natural vegetation—the soft and hard woods, shrubs, and salt marsh vegetation—must be preserved. The other forms, having already been influenced by man, could again be changed by man.

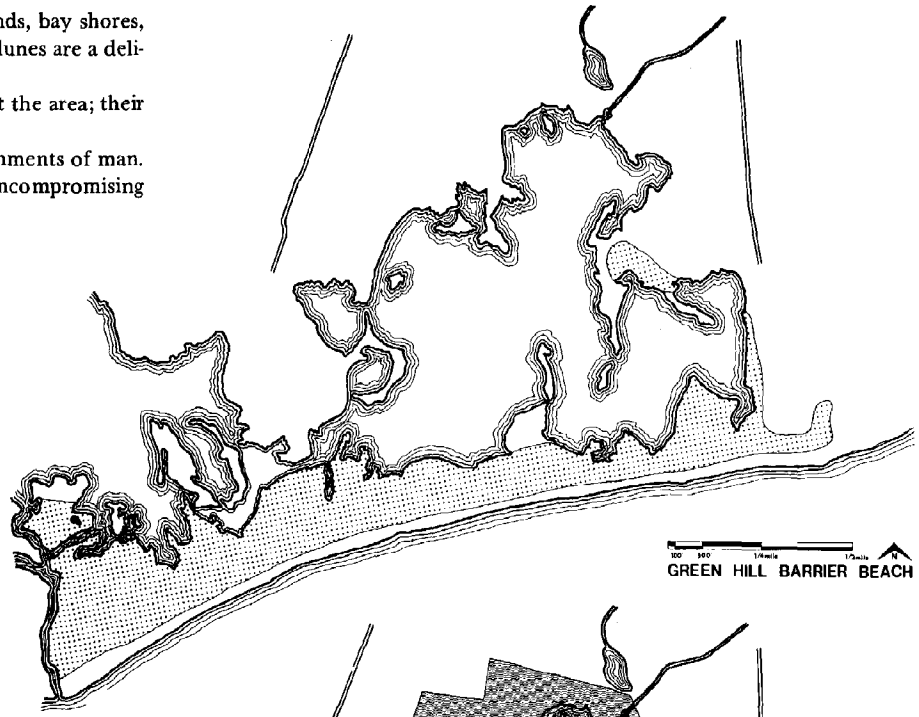


VEGETATION WHICH SHOULD BE PRESERVED

Surficial geology includes the land features of swamps. slopes, outwash flatlands, bay shores, beaches, dunes and beach grass, and artificial fill. Swamps. bay shores, beach, and dunes are a delicately balanced system; development could easily impair the system's integrity.

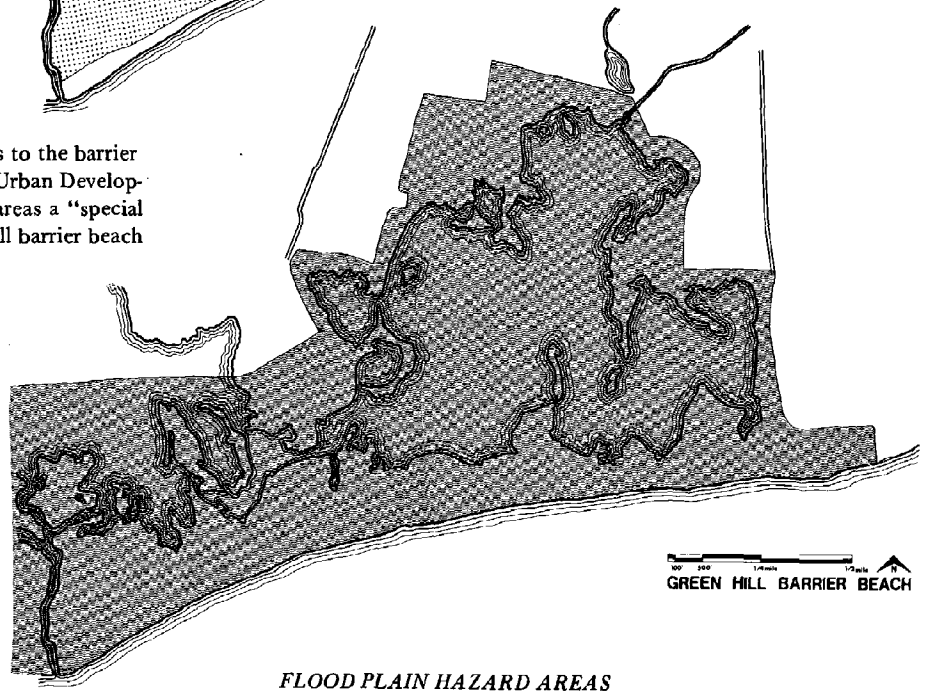
Topography, bedrock geology, ground water, and slope very little throughout the area; their impact on development capacity is constant.

Mapping the above features reveals natural areas endangered by the encroachments of man. Yet another sensitivity must be taken into account. The sea presents its own uncompromising standards for design and development



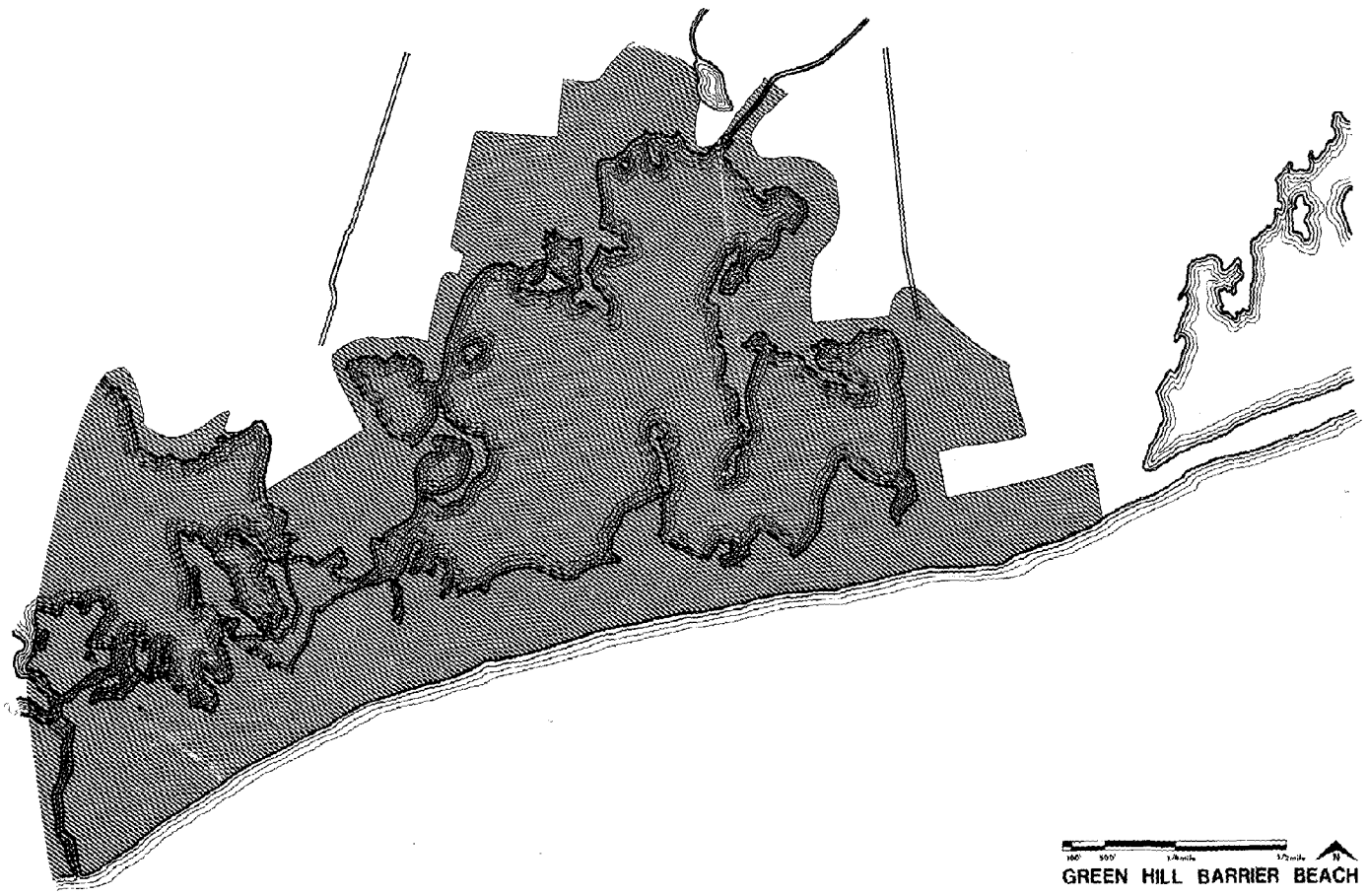
SURFICIAL GEOLOGY: AREAS EASILY IMPAIRED BY DEVELOPMENT

Floods caused by the tremendous force of moving water are the major dangers to the barrier beach and low-lying areas behind the pond. The U. S. Department of Housing and Urban Development, in the institution of its Flood Plain Insurance Program, has mapped these areas a "special hazard zone," an area where danger to development is greatest. The entire Green Hill barrier beach area is included in this special hazard zone.



FLOOD PLAIN HAZARD AREAS

Compiling the individual sensitive areas maps forms a composite sensitive areas map. This composite map is the primary design tool. Preservation is accomplished by respecting sensitive areas.



COMPOSITE OF SENSITIVE AREAS: A PRIMARY DESIGN TOOL

While conservation and respect for the land imply the prohibition of activity, recreation implies the fostering of activity. Swimming, sunbathing, picknicking, boating, walking along the shore, fishing, surfing; these are some beach recreation activities. These activities, of varying intensities, must be located on the beach in such a way that they conflict neither with the sensitive natural areas, nor with each other.

In the design proposed here, swimming is allowed at the two points of land access to the sea—Green Hill and Charlestown. While the delicate dunes must remain restricted, the area between the dunes and the sea is well suited to swimming and sunbathing. Between the swimming areas, walking on the beach and surf fishing are permitted.

Since the dunes are restricted most severely, walking is directed to nature paths behind the dunes along the edge of the pond. Natural breaks in the dunes allow passage from the beach to the pond. Trails follow the pond edge, and serve to guide activity to specific areas, away from the areas of great sensitivity. The width of the paths acts as a positive constraint on the intensity of their use. Narrow paths discourage large groups. The activities encouraged here are solitary ones—bird watching, fishing, quiet walks.

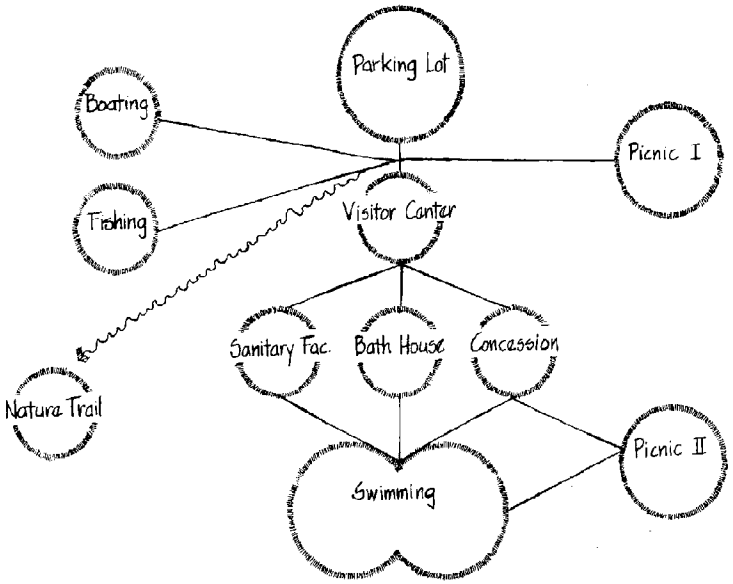
Boating is permitted on the pond, but outboards and other internal combustion engines are prohibited; fishing is suggested for the breachway area.

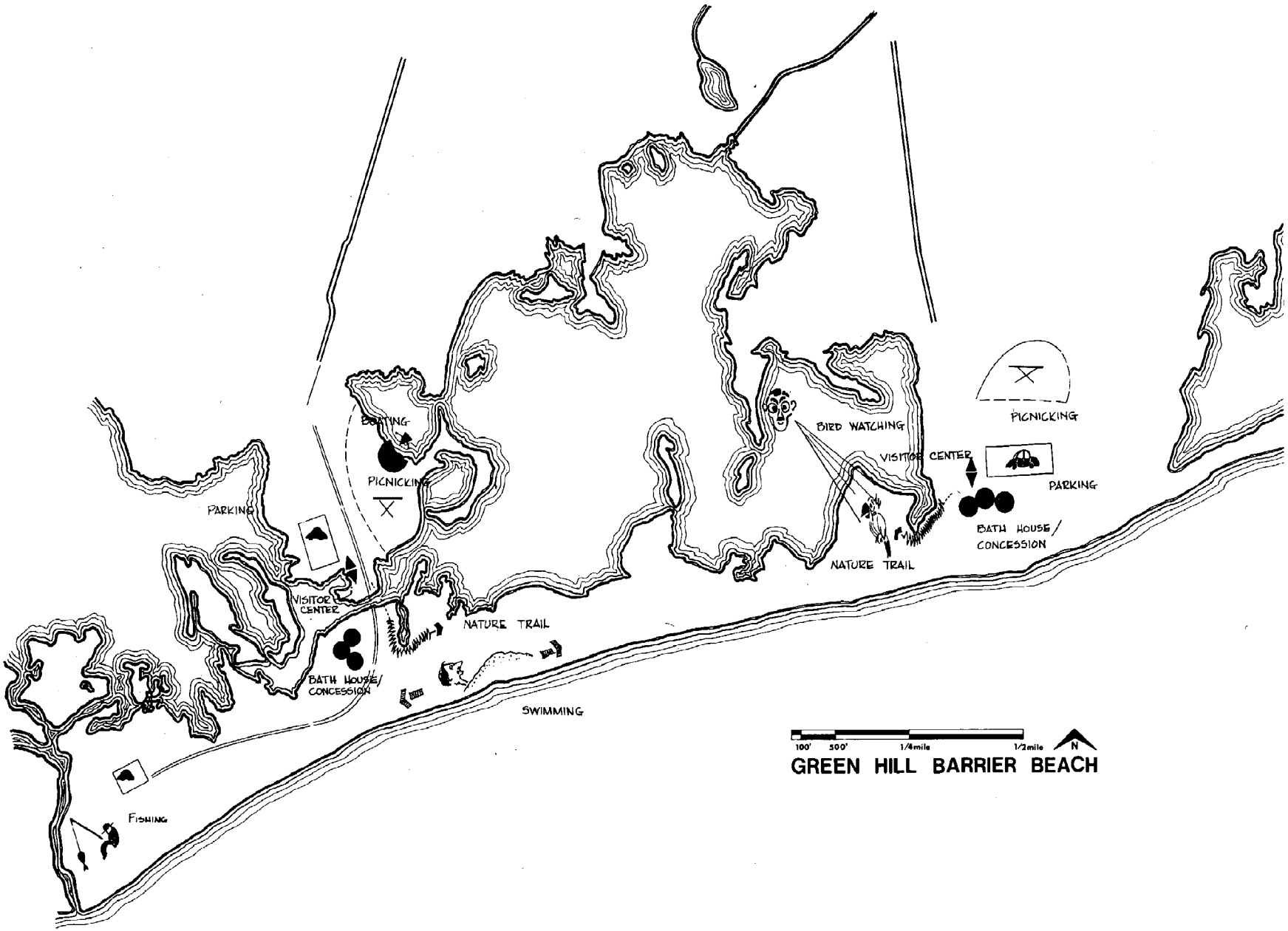
Support facilities are necessary to complete the physical design. These include sanitary facilities, bath houses, concession stands, and parking. Their location plays an important role in the compatibility of the conservation and recreation goals within the design.

For instance, the number of parking spaces limits the number of swimmers and people on the beach. Activities tend to concentrate around sanitary facilities and concession stands.

A visitor's center can provide a combination management and education facility, which would promote appreciation of the uniqueness of the barrier beach area.

ACTIVITY AREA INTERRELATIONSHIPS





LIMITED PUBLIC DEVELOPMENT DESIGN: RECREATION AND CONSERVATION BALANCED

Designing the project area does not guarantee that the objectives of the design will be carried out. Controls must be included to maintain the balance between the twin objectives of conservation and recreation.

ACQUISITION PROCEDURES:

Taken as a whole the Green Hill barrier beach project is quite large, but it lends itself, through its natural configuration, to completion by stages. The total project area is 1198.5 acres, 630.4 acres of land, and 568.1 acres of water. The total assessed valuation of the project area is $3,867,644.

Sensitive beach areas should be acquired first;—the parcel of land comprises 318.5 acres. Subsequent stages in the acquisition process are: the land access point in Charlestown: 67.1 acres; the land access point in Green Hill: 75.3 acres; and the land around the pond: 169.5 acres.

Acquiring a large piece of land such as Green Hill Beach entails a great deal of capital investment. The vehicles for acquisition are twofold: private and public (See Appendix for acquisition procedure flow chart.)

Public Acquisition:

There are three major strategies available in terms of government assistance in acquiring the land within the study area:

1) The State, through a bond issue, or the Federal government, through a special Act, can borrow funds for acquisition.
2) Existing Federal or State grant and loan programs may be utilized to purchase the entire area.
3) A combination of the existing grant and loan programs might be utilized in order to spread the financial burden over a number of sources, particularly where funds available from any one program (such as the State's Green Acres Program) are limited. This method has proved quite effective in other areas in which there is government assistance (e.g., health planning), and should prove equally viable here.

With these general strategies in mind, existing Federal, State, and local programs for acquisition of land to be used for public recreation or conservation projects can be examined (see Appendix I). The many programs range from outright purchase for a National Park to government subsidies for loan interest payments. From these programs, two strategies have been selected; these two not only fit the requirements of the project (balance of conservation and recreation), but also are politically feasible. In the first strategy, which simplifies both management and application processes, acquisition takes place under a single grant program. In the second strategy, which distributes the funding burden among a number of agencies, acquisition takes place under a number of grant programs.

Strategy one: the single agency:

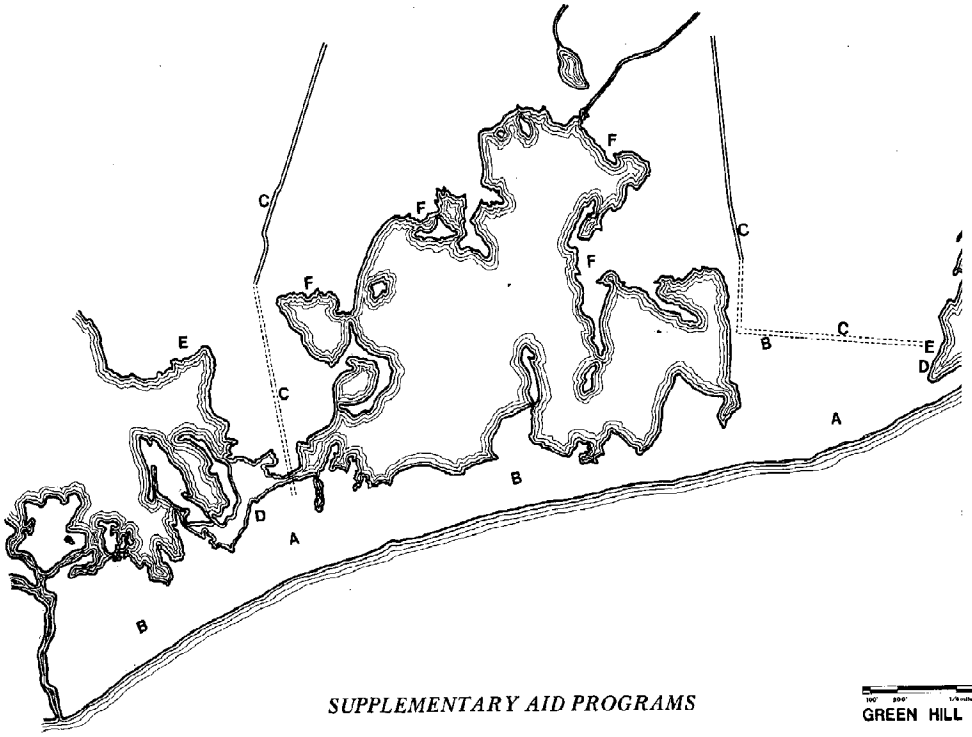
Under this alternative, the entire site would be acquired by the State or town(s) involved. There are three active Federal matching grant programs which would supply up to 50 percent of the total acquisition cost, the rest of the cost to be matched by the State or town. These three programs are included in the following table:

FEDERAL PROGRAMS GIVING FINANCIAL ASSISTANCE TO OUTDOOR RECREATION/CONSERVATION LAND ACQUISITION PROJECT

Program	Agency:	Allowed Uses:	Extent of Financial Aid	Available 1972 Funds:
Small Watershed Program (PL-566)	Soil Conservation Service, Dept. of Agriculture	Flood prevention Drainage Fish & Wildlife Public recreation	100% for flood construction costs.	$75,797,000
Land & Water Conservation Fund Grants	Bureau of Outdoor Recreation, Department of Interior	Acquisition & development of outdoor recreation areas & facilities for the general public, to meet current & future demands.	Not more than 50% of project cost may be Federally financed. However, sponsor's share may be assisted by other Fed. programs (e. g., Model Cities)	$148,500,00
Open Space Land Program (Title VII) HUD Act, 1970	Department of Housing & Urban Development	Help communities meet rapidly growing recreation needs of communities by assisting them in acquiring & developing the land to be so used.	Not more than 50% of the project cost may be Federally financed.	$200,000,000

Strategy two: multiple agencies:

This method, as explained earlier, attempts to spread the financial burden or acquisition over a series of programs through which the State or town is eligible for assistance. Different areas of the project site would be eligible for funding from different agencies, depending upon the land use of the area, as indicated in the map and table below. (The letters on the map correspond to the letters in the table).



SUPPLEMENTARY AID PROGRAMS

POSSIBLE DISTRIBUTION OF COSTS AMONG A NUMBER OF PROGRAMS AND AGENCIES

Area:	Program:	Agency:	Extent of Financial Aid:*	Available 1972 Funds:
A. The two areas of the beach to be used for intensive recreation (i. e., swimming)	Open Space Land Program (Title VII, HUD Act of 1970)	Department of Housing & Urban Development	Not more than 50% of project costs may be Federally financed.	$200,000,000
B. The central area of the barrier beach, to be used for limited recreation	Land & Water Conservation Fund with the State Green Acres Program	Bureau of Outdoor Recreation, Department of the Interior	Not more than 50% of project costs may be Federally financed.	$148,500,000 Federal (bond issue necessary, State)
C. Highways give access to & internal circulation within the area	------	Rhode Island Department of Transportation	100%	------
D. Tourist facility & bath houses	Grant-in-aid supplements for supportive facilities when community can't supply matching share	New England Regional Economic Development, Economic Development Act, 1965	Total Federal assistance cannot exceed 80% of the total project cost.	$2,285,000
E. Parking areas	Acquisition of land & construction of parking space to accompany improved public facilities	Rhode Island Public of Way Commission	100%	This would require special appropriations by the State General Assembly
F. Land adjacent to the north shore of Green Hill Pond	Acquisition of land for fish management (Dingell-Johnson Act)	Bureau of Sport Fisheries & Wildlife, Department of the Interior	Federal gov't pays up to 75% of project costs, if the State "fish & game" department manages the area	$16,500,000

There are, of course, political/economic constraints common to both strategies. Lack of available funds at the State and local level, especially in the Rhode Island Green Acres Program, added to the reluctance of the voters to approve new money through authorizing new bond issues are the two major roadblocks. All of these programs require some State or local outlay, often as much as 50 percent of the total project costs. Unless supplementary grants are available to cover most of the municipal or State shares, both governments would have to request additional appropriations or authority to borrow.

A few crucial "supplementary aid programs," explained in the table below, help the local governments meet their portion of the program through subsidizing them with loans or grants.

SUPPLEMENTARY AID PROGRAMS

Programs:	Agency:	Allowed Uses:	Extent of Financial Aid	Available 1972 Funds:
Supplements to N.E. projects to provide a portion of the local share of Federal grant-in-aid programs	N.E. Regional Economic Development (N. E. Regional Action Planning & Economic Dev't Act of 1965)	Recreation, Conservation	Total Federal assistance, including supplements, cannot exceed 80% of eligible project costs.	$2,285,000
Grants to cover interest on debts, incurred in purchasing land for sites for future development, ideally within five years	Community Resources Development Administration, Dept. of Housing & Urban Development	Advanced acquisition for recreation	Aid equal to interest rates on incurred debts	-------
Loan assistance to carry out works of improvement to protect and utilize the land & water resources in small watersheds.	Farmers Home Administration, Department of Agriculture	Flood prevention, Recreation Fish & Wildlife improvement	Indebtedness not to exceed $5,000,000	$5,400,000

Private Acquisition:

In the event that the Federal government is unwilling or temporarily unable to acquire (or assist in acquiring) the Green Hill area, the methods of acquisition are not yet exhausted. Private, non-profit development organization could join in a variety of activities with the public agency undertaking the Green Hill project. This would supplement the activities of the public agency by expanding the funding base. Three points in favor of such a private venture are:

1) A non-profit organization is often willing to take risks and undertake experiments which a private corporation or a public agency would avoid. Moreover, it could legitimately pursue quasi-public functions such as the management of a recreation/conservation area open to the public. Such organizations often attract grants, gifts, or low-interest loans from governments, individuals, and foundations.
2) A non-profit organization could fulfill important "escrow" functions between government and private land owners, for example: a private owner might be willing to make conditional gifts to a non-profit organization which would maintain the land for a public use pending fulfillment of the conditions by the public agency. (A good example is Nature Conservancy, explained below.) When the conditions were subsequently met, the non-profit organization would convey the land to the public agency. But pending fulfillment or abolition of the conditions, the land would be secure, maintained and publicly available. Private owners often find this method perferable to the risk of donating land conditionally, but directly, to a public agency.
3) A non-profit conservation organization can receive gifts of land and development rights to hold permenently in trust. And it also serves as a central management organization for land used in common or owned by different homeowners' associations (a very likely occurrence at Green Hill).

The two common forms of a non-profit organization are the non-profit corporation and the trust. They are quite similar and share significant tax advantages (as explained in more detail below). They offer a base for private funding and means of attracting outside financing. They have already proven quite successful in other parts of the country; there is no logical or legal reason why they could not succeed here.

In Rhode Island, three major non-profit land conservation corporations already exist:

1) *The Audubon Society of Rhode Island:* This organization has permanent property tax exemption status, as well as Federal income tax exemption. However, it has limits to the amount of land it is willing to acquire. Its goal is strict conservation; and so it often works with the U.S. Fish & Wildlife Service, a government agency with a firm policy of strict conservation. Recreation is allowed only where no ecological damage will occur.
2) *Rhode Island Heritage Association:* Although specializing in the preservation of historical structures or areas within Rhode Island, this group also has charter provisions allowing it to acquire unique natural areas. It has permanent exemption from Federal income-tax and local property tax.
3) *Nature Conservency:* This is a 25-year old non-profit corporation with nationwide experience in land acquisition for conservation and recreation. It has expressed interest in the Green Hill Beach area and will acquire key shore line land parcels by gift, bargain purchase, and purchase at market value, in that order of preference, with funds raised from private and foundation sources (primarily from South County and Rhode Island). Management of acquired lands will be delegated where possible, and lands will be conveyed to governmental agencies whenever satisfactory assurances of preservation and financial arrangements permit. The Nature Conservency can provide assistance in many different ways. It will work with the State or town, by buying the land with the provision that the State or town will replay. It will lend money to a private land trust organization (explained below) or co-sign a loan from some financial institution to such a trust organization. Nature Conservency now owns two pieces of property in Rhode Island; however, its perference is to *not* own land, but rather to assist others in acquiring land for conservation purposes.

RECOMMENDATION:

IN THE EVENT THAT GREEN HILL IS UNACQUIRABLE BY SOLELY PUBLIC MEANS, IT IS RECOMMENDED THAT A NEW LAND HOLDING TRUST ORGANIZATION (ENTITLED THE *GREEN HILL LAND TRUST)* BE ESTABLISHED TO HOLD THE LAND UNTIL SUCH TIME AS THE PUBLIC AGENCY RESPONSIBLE (SOUTH KINGSTOWN, OR THE STATE, OR THE FEDERAL GOVERNMENT) IS ABLE TO ASSUME OWNERSHIP.

In order to be financially viable, this trust would need both Federal income-tax exemption (for which it would be eligible as a non-profit organization), and local property tax exemption.

This latter step requires:

—permission from the town to be exempt from property taxes, and
—enabling legislation in the form of a special bill passed by the State Legislature exempting it from local property taxes.

The second step is usually successful if the bill has the support of the town. A South Kingstown legislator introducing the bill to the General Assembly would be an excellent expression of the town's support.

After these two tax hurdles have been passed, the trust may begin to acquire land through outright purchase of title, limited use agreements, and gifts. The acquisition money is available from many sources, a few of which are listed below:

1) Nature Conservency, which will either make or co-sign loans.
2) various foundations (e.g., Ford Foundation), which will make incentive grants of 1-5 percent, depending on the size of the project, or, in this case, the size of the particular stage of the project.
3) various large banks, savings and loan companies, and insurance companies, which have been increasing their financial backing of private recreation/conservation programs in recent years (and would increase their roles even more if there were a Federal loan insurance program or a Federal participating loan program)
4) the Federal government, which makes money available to private recreation and conservation projects through the following programs:
—the Resource Conservation and Development Projects of the Soil Conservation Service, which make loans available through the Farmer's Home Administration
—the Economic Development Administration, which will make money available to private projects compatible with the State's Recreation Plan
—the Open Space Land Program, which is part of the Housing Act of 1961, as amended.
—the Internal Revenue Service, under the Department of the Treasury, which makes both corporate and individual taxpayers eligible for income-tax deductions on gifts of money, land, or other property to qualified private organizations engaged in fostering natural beauty.

AFTERWORD

While the recommendations of the Green Hill study group allow for some recreational activity at Green Hill, the recommendations do not purport to meet the beach demand that presently exists in Rhode Island. Critical to the recommendation is the necessity for the State to plan additional recreational activities. Because of Rhode Island's climate, the most intense demand for recreation in the state occurs in the summer months, particularly in July and August. The demand is mainly for water-related activities—boating, fishing, and beach activities. Conflicts of multiple uses and intensity of use in recreational areas are increasing. And one natural resource—beach space—is clearly in short supply.

Beach activities are expected to form the prime component of Rhode Island's summer recreation system. The following factors explain the popularity of beach activities: no expensive equipment, no lengthy preparation time, easy access, lack of complexity.

Clearly, with beach activities continuing to remain popular, and the natural supply of beach land remaining constant, unpleasant overcrowding is a distinct possibility. Accordingly, the State should begin to foster alternative forms of summer recreation. This does not imply that the State should de-emphasize a prime natural resource. Rather, the development of additional recreation activities would help to ensure the continued popularity and protection of Rhode Island's beaches. Two major alternatives could be the following:

1) Orientation toward passive, non-beach, Bay pursuits. This alternative recognizes existing plans (development of Fort Wetherhill, Fort Adams, and the Island Park System) and recommends that these types of development be pursued more vigorously. Essentially, these types of recreation capitalize on the attraction of the Bay, while promoting non-swimming or limited-swimming activities. Camping, picnicking, hiking, informal sports activities become alternatives to swimming.

The development of the Island Park system as a major recreational attraction could be crucial since it would open up a large amount of shoreline to public access. An important spinoff would be the development of a large passenger boat service to serve the islands, which could be the basis of another Bay-oriented recreation activity.

2) The western and northern parts of the State remain relatively untapped in terms of recreational potential. A number of management areas presently exist whose expanded use is limited through lack of facilities. Two well developed facilities—Lincoln Woods and Burlingame—are dreadfully overcrowded during most of the summer. If existing management areas are upgraded to accommodate more people, careful attention to the environment will be necessary. A carefully planned effort, however, would help to channel some of the demand for summer recreational activities into camping, backpacking picnicking, and stream and pond-related activities. Such activities would utilize other Rhode Island natural resources, thereby relieving the beaches to some extent.

Finally, should the concept of the Green Hill Land Trust prove successful, the State should encourage the formation of a statewide, non-profit agency. The size of Rhode Island, and the nature of the recreational problems here indicate that such a solution might well be feasible.

APPENDIX A – COASTAL ZONE GOALS OF THE STATE

Goals	Source
Economic	
–provide insurance protection for those living in areas where regular insurance coverage is prohibitive	Floodplain Insurance Act of 1970
–promote tourism	R. I. Development Council
–promote economic growth	Council of Economic Advisors
–promote economic development of fresh water resources	Water Resources Board
Environmental	
–foster environmental planning through land use control measures	Floodplain Insurance Act of 1970
–study and recommend policy in coastal zone (for protection)	Marine Resources and Engineering Dev. Act of 1966
–study and protect, conserve and restore estuaries	Estuary Protection Act of 1968
–study and make recommendations on problems and management of coastal zone	Clean Water Restoration Act of 1966
–preserve purity and integrity of coastal wetlands	Coastal Wetlands Act of 1965
–protect fisheries, life and property from flood, hurricane, and other natural disasters	" " "
–plan for management of resources by formulating standards	Coastal Resources Management Council Act
–protect ecological balance of intertidal salt marshes	Intertidal Salt Marshes Act
–prevent desctruction of natural resources	Fresh Water Wetlands Act of 1971
–study water resources	JC Water Resources
–promote the development of coordinated environment program	JC Environment
Political	
–bring about enforcement power in coastal zone	Marine Resources Engineering Dev. Act. of 1966
–formulate management system under the Department ment of the Interior	Clean Water Restoration Act
–regulate construction of buildings and land-use	S. K. Zoning Act, 1928
Social	
–guarantee R.I. citizens' rights to fishery	Art. 1, Sect. 17, R. I. Constitution
–protect natural environment for people by providing adequate resource planning	Art. 1, Sect. 17, R. I. Constitution
–provide land for recreation and conservation of natural resources (esp. unique natural areas)	Green Acres Act, 1964
–flood prevention and control	Fresh Water Wetlands Act 1971
–provide disaster relief	State Council of Defense
–provide for development of the state's physical human, and economic resources	Statewide Planning
–provide information on the coastal zone	Dept. of Adm.
–maintenance, protection and promotion of health of all the people of R.I.	Dept. of Health
–solve the problems of modern government	Department of Community Affairs
–plan, develop and conduct physical, economic and human resources programs	" " "
–open pulbic rights-of-way to the shore	Commission on Public Rights-of-way

APPENDIX B – LEGISLATIVE CONSTRAINTS

Constraints	Source
–adopt land use and control measures by local level in order to qualify, approved by the federal government.	Flood Plains Insurance Act
–plan established through hearings (DNR) for coastal wetlands: use restricted or denied under plan.	Coastal Wetlands Act
–issue permits for dredging, filling or physical alteration of intertidal salt marshes.	CRMC
–right of eminent domain to acquire land for recreational or conservation purposes.	State Properties Comm.
–fine for disturbing ecology of intertidal salt marsh and required to restore to the extent practical.	Intertidal Salt Marshes Act
–regulations concerning pollution as it affects shell fishing.	Dept. of Health
–administer state aid for sewage plant construction.	Dept. of Health
–standards for public lodging, camping, bathing, and trailer facilities; regulation of private sewage facilities.	Dept. of Health
–regulate public utilities.	Publid Utilities Comm.
–approve, modify, set conditions for, or reject the design, location, construction, alteration, and operation of specified activities or land uses when these are related to a water area under the agency's jurisdiction.	Coastal Resources Management Council

APPENDIX C – AGENCIES INVOLVED IN THE COASTAL ZONE

Legislative Branch

Joint Committee on Water Resources (General Assembly).

–consult and counsel with Water Resources Board, and water department of the cities and town in order to conduct a continuing study of water resources, supplies, and methods of acquisition and distribution.

Joint Committee on Environment (General Assembly)

–promote the development of a coordinated environment program and to consult with all federal, state and municipal agencies dealing with ecology and environment.

Executive Branch

Office of the Governor

–formed Technical Committee on Narragansett Bay and the Rhode Island coastal zone (1967, expanded 1970)

–Coastal Resources Management Council formed because of recommendations from the Technical Committee

–$20,000 pledged to Coastal Resources Center at URI

State Council of Defense

–responsible for distribution of necessities in time of emergency

–presently primary agency for emergency disaster plan coordination with other state agencies and the Coast Guard

Rhode Island Development Council

–mainly research and promotional agency interested in economic development of the state–no regulatory powers

–collect information relative to natural and economic resources of the state including industry, business, agriculture, fisheries, recreation and residential facilities

–promote development of new industry . . . recreational facilities in the state

–community planning assistance role is shifted to the Department of Community Affairs

–Research Division provides population growth and other data for analysing coastal region.

Division of State Police

–assist the Department of Natural Resources and Coast Guard in enforcing all laws and regulations relevant to the coastal environment

–members may be assigned to the Department of Natural Resources

Council of Economic Advisors

–responsible for information concerning economic growth and development of the state

Department of Administration

–overall responsibility for maintaining computerized data banks on coastal information

–designated by governor to give authority to Department of Natural Resources to administer Green Acres Act

Division of Statewide Planning

–responsible for coordinating for the comprehensive development of the state's human, economic and physical resources

–has worked with the Technical Committee in planning for coastal zone and also with Coastal Resources Management Council and Coastal Research Center

–responsible for A-95 review on coastal resources project

–significant publications on coastal zone

–principal state agency assisting New England River Basins Commission in developing long-range plans for water and resource problems in Southeastern New England

Department of Transportation

Planning Division

–aid the Division of State Planning in preparing transportation elements of long-range state guide plan

–prepare functional and area plans, project plans, improvement programs, and implementation programs

–prepare environmental impact statements on federally funded programs

Public Works Division

–design and construction responsibilities for transportation facilities

Public Transit Authority

–has indirect role in providing mass transit facilities to coastal zone areas

Board of Regents

–responsible for formulating and implementing master plan for public education in the state

University of Rhode Island

–undertakes various marine and planning related programs

–designated Sea Grant University

–Water Resource Center conducts applied and basic research in water resources and related areas

–Coastal Resources Center provides CRMC with information to assist in planning and managing the coastal zone

Department of Health

–provides for maintenance, protection and promotion of the health of all the people of Rhode Island

–accomplishes objectives by setting and enforcing standards on a uniform and state wide basis; providing environmental health protection through pollution control; health surveillance, planning and program development through data gathering and analysis; and providing health services supplementing, in critical areas, those of the private sector

–in coastal zone the department has powers and duties in the areas of air and water pollution, and works closely with the Department of Natural Resources in management of shellfish affected by water pollution

Environmental Health

–responsible for the overall supervision, program planning, and policies in water supply and pollution control, food protection and sanitation, occupational health, solid waste management and air pollution control

–assistant director serves on CRMC

Division of Air Pollution Control

–charged with protecting, preserving, and improving the air resources of the state

–sets and enforces ambient air quality standards for various air pollutants

Division of Food Protection and Sanitation

–responsible for enforcement of state laws regarding minimum sanitary standards for public lodging, camping, bathing, and trailer facilities and for enforcing regulation about

individual sewage facilities, for private water supplies and rodent control
—must approve plans for all individual sewage systems

Division of Solid Waste Management
—through Department of Natural Resources and the Coastal Resources Management Council it is largely responsible for administering the laws regulating refuse disposal into coastal state waters. The division sets minimum standards for refuse disposal facilities and their location
—provides advice to local towns and cities concerning solid waste disposal facilities and management

Division of Water Supply and Pollution Control
—regulates pollution of the state's waters by:
(1) approving plans for all new municipal and industrial waste treatment systems,
(2) surveys state waters and pollution control facilities,
(3) classifies state waters as to suitability for various uses,
(4) reviews plans for new subdivision to determine the type and size of sewage disposal system needed,
(5) approves federal grants for water pollution control facilities,
(6) administers state aid for municipal sewage treatment plant construction
—works with the New England interstate Water Pollution Control Commission in the development of standards for interstate water quality systems
—closes and supervises polluted areas used for shellfishing

Department of Community Affairs
—provide technical and financial assistance to communities to plan, develop and conduct physical, economic and human resource programs for effective community development
—primary purpose to solve the problems of modern government
—must cooperate with the Division of Coastal Resources in carrying out specified duties in federal navigation and flood control projects and in administration of the Shore Development Act of 1956 as amended
—agency is empowered to prepare a series of existing conditions maps, to prepare a synopsis of planning work already accomplished in Rhode Island, to obtain reports and other data from state boards, and to lay out preliminary long range plans for state development

Administration and Program Management Division
—main function in coastal zone is management and administration of federal grants and state aid to communities

Division of Planning and Development
—using district planners, this department provides planning function for those communities without permanent staff or consultants—link between local governments and the state

Department of the Attorney General
—responsible for litigation and negotiations involving state boundaries in the coastal areas

Department of Natural Resources
—supervision and control of the protection, development, planning and utilization of the natural resources of the state
—exercises the functions of the former divisions of harbors and rivers, parks and recreation and department of agriculture and conservation
—to cooperate with the Department of Health in the enforcement of laws relating to water pollution
—to cooperate with the Department of Community Affairs in its planning function
—to cooperate with, advise and guide conservation commissions of cities and towns
—regulate use of fresh and coastal wetlands
—to assist the Department of Natural Resources by suggesting policies and making recommendations related to natural resource problems

Division of Parks and Recreation
—maintains, services, and operates the state parks and recreational areas, including beaches
—currently administers just under 11 miles of coastline, including 220 acres of parks

Division of Fish and Wildlife
—responsible for wildlife management both inland and in the coastal zone, including the relocation of fish and wildlife in environments more suitable for reproduction, etc.
—conducts research on fish and wildlife in area
—manages projects acquired under Green Acres Act until such time as they are developed for recreational use.

Division of Coastal Resources
—responsible to both director of Department of Natural Resources and through him to the Coastal Resources Management Council
—designated to carry out those functions relating to harbors and harbor lines, flood control, shore development and others
—provides technical and administrative assistance to the Coastal Resources Management Center in granting of permits for work in coastal waters
—regulates land reclamation and tidewater dumping and flood and hurricane protection, shore erosion and beach stabilization, opening and maintaining breachways into salt ponds, and riparian and littoral rights and water laws

Division of Planning and Development
—responsible for carrying out planning, programming, and acquisition of land, and engineering pertinent to Department of Natural Resources
—responsible for administering Fresh Water Wetland Act, hearings and granting permits, and carrying out the inventory
—works with Statewide Planning in developing plans for recreation and conservation; acquires land for natural resources related recreation, parks, beaches, marshes, forest and management areas, unique natural features, fishing access areas and others
—reviews projects sponsored by other agencies which affect natural resources administers Green Acres program
—works with Statewice Planning by providing information on coastal use and problems; assists Water Resources Board in development of water resources

Division of Enforcement
—enforces all of the laws and regulations of the Department of Natural Resources
—operates in areas of marine patrol, park patrol and upland patrol

Judicial Branch

The Supreme Court, Superior Court, and District Courts provide the forum for the resolution of issues and conflicts arising from existing legislation and enforcement practices pertinent to the coastal zone.

Independent Boards and Commissions

Coastal Resources Management Council

—to preserve, protect, develop, and where possible, restore the coastal resources of the state through comprehensive and coordinated long range planning and management designed to produce the maximum benefit for society
—inventories coastal resources
—prepared plans identifying "permitted uses"
—to adopt regulations necessary for carrying out its policies and plans
—to regulate through permits, development within, above and beneath the tidal water below the mean high water mark
—to see that any development plans show that they do not damage the coastal environment significantly
—to consult and coordinate with governmental agencies and private interests, to sponsor or conduct research, to advise the governor, general assembly, and the public on coastal matters
—to function as a binding arbitrator for conflicts over coastal region between two or more municipalities or state agencies
—to issue permits for any physical alteration of intertidal salt marshes
—to act as a research arm of the council the University of Rhode Island has set up, the Coastal Resources Center at URI

Water Resources Board

—though its primary concern is with fresh water, its programs and efforts could be considered as good examples for similar treatment of the coastal zone

Recreational Building Authority

—reports on meritorious recreational locations

Natural Resources Advisory Council

—makes policy suggestions to other state agencies on natural resources

Commission on Uniform State Laws

—responsible for examining various subjects including natural resources, regulation of fish and game, and social and economic laws to bring them into accord

Commission on the Discovery and Utilization of Public Rights of Way

—responsible for determining and opening rights of way to the shore to the public

APPENDIX D – BUDGET EXPENDITURES FOR STATE AGENCIES

	1971-72	1972-73
Total State Budget	**$420,000,000**	**$440,600,000**
Rhode Island Development Council	*$707,373*	*$668,392*
Statewide Planning	*$327,595*	*$350,525*
Department of Natural Resources	*$6,141,057*	*$5,226,921*
Division of Coastal Resources	$431,676	$227,214
Planning & Development	$382,127	$209,744
Division of Enforcement	$743,653	$756,005
Department of Health	*$10,425,293*	*$10,587,044*
Environmental Health Services	$2,891,845	$3,217,719
Health Programs	$3,492,397	$3,375,139
Health facilities Service	$1,920,310	$1,930,699
Division of Water Supply & Pollution Control	$629,008	$595,024
Division of Food Protection & Sanitation	$1,059,755	$1,124,490
Department of Community Affairs	*$10,154,557*	*$10,215,410*
State Water Resources Board	*$1,330,265*	*$1,010,295*
Commission on Public Rights of Way	*$15,182*	*$10,000*
State Council of Defense	*$309,022*	*$333,881*

APPENDIX E – REVIEW OF EXISTING STATE POLICY AND LOCAL PLANS

Existing legislation relevant to Green Hill Project

–Article 1, Section 17 of the Constitution of Rhode Island.
–Coastal Wetlands Act of 1965.
–Act creating the Coastal Resources Management Council.
–Chapter 46.1 General Laws of Rhode Island.
–Chapter 1298 of the 1928 Public Laws of Rhode Island.
–Chapter 2490 of the 1950 Public Laws of Rhode Island.
–Green Acres Land Acquisition Act of 1964.
–Zoning Ordinance of South Kingstown.

Pertinent Portions of the Legislation

–Article 1, Section 17 entitled "Fishery Rights and Shore Privileges," amended, states: "it shall be the duty of the general assembly to provide for the conservation of the air, land, water, plant, animal, mineral and other natural resources of the state, and to adopt *all means necessary and proper by law* to protect the natural environment . . . by providing adequate resource planning for the control and regulation of the use of the natural resources of the state and for the preservation, regeneration and *restoration* of the natural environment . . . In the case of Nugent v. Vallone, 91 RI 145, 161A 2nd 802, under this law, it was ruled that the state had the right to own, in trust, soil under public water to preserve public rights of fishery, navigation & commerce.

This constitutional amendment supported the Coastal Wetlands Act and the Act creating the Coastal Resources Management Council.

The Coastal Wetlands Act states: "A coastal wetland shall mean any salt marsh bordering on the tidal waters of this state, . . . and such uplands contiguous thereto, but extending no more than fifty yards inland therefrom, as the director shall deem reasonably necessary to protect such salt marshes . . . (Section 2-1-14).

Whereas, the salt marsh peat helps to absorb flooding and obviate hydraulics of severe flood conditions, and people have endangered the salt marsh by thoughtless destruction, and whereas it is the policy of the state to protect the coastal wetlands, the state is therefore required to restrict the uses of coastal wetlands under the police power of the state. (Section 2-1-13).

After public hearings the department may designate coastal wetlands which shall not be disturbed, and the use of which is to be restricted to uses compatible with public policy. Before making such designation the department must consider the "value of the coastal wetlands to the public health, marine fisheries, wild life and the protection of life and property from flood, hurricane and other natural disasters."

No city, town, person, firm or corporation shall use or permit the use of such restricted coastal wetlands contrary to the order of the state (Section 2-1-15).

–Act Creating the Coastal Resources Management Council which gives Council the following powers and duties under section 46-23-6:

1) Planning and Management: "formulate plans and programs for the management of each resource, identifying permitted use, locations, protection measures . . . " They may carry out management duties by use of state, federal, local and private activities. They have power to formulate standards where they do not exist and re-evaluate existing standards.

2) Implementation: The council has authority over land areas only if it is necessary to carry out effective resource management programs and under conditions where land use would conflict with a plan for resource management or would damage the coastal environment. The authority of the council is limited to the authority to approve, modify, set conditions for, or reject the design, location, construction alteration, and operation of specific activities of land near a water area.

3) The council shall issue, modify, or deny permits for dredging, filling or any other physical change in a salt marsh.

4) Any violation of the order of the council is a misdemeanor (Section 46-23-7).

–The Green Acres Land Acquisition Act of 1964. This act illustrates a means for governments to obtain coastal land. The policy statement of this act states land should be acquired for public recreation and conservation of natural resources since it promotes the public health, prosperity and general welfare. Land should be acquired to meet expanding needs of the populations.

Due consideration is to be given to acquiring unusual or unique areas.

Land under this program can be acquired by local governments under their own powers, or by the state government through purchase, gift, devise, or as determined by the director, or by eminent domain.

–Chapter 41.6 General Laws of Rhode Island (Intertidal Salt Marshes). Since the marshes are in danger by thoughtless persons, and since the marshes provide both aesthetic and economic benefits (fishing) the law requires that a $500 fine be levied on anyone who dumps, excavates or otherwise disturbs the ecology of a marsh without a permit. Further, the person responsible for damage to the marsh be required to restore it as far as is practical.

The marsh is defined by its vegetation, consisting of some but not all of the following: salt marsh grass, black grass, seaside lavender, saltwort, salt meadow grass, spikegrass, salt marsh bullrush and sand spurrey, and under which exists a substitute of salt marsh peat.

–Zoning Ordinance of South Kingstown (as amended). Zoning policy consists of the following: "The town council may devide said town into districts . . . within such districts it may regulate and restrict the erection, construction, reconstruction, alteration, repair or use of buildings, structures or land. All such regulations shall be uniform for each class or kind of building throughout each district but the regulations in one district may differ from those in other districts. Regulations shall be made in accord with a comprehensive plan to promote the conservation of exceptional natural physical features."

Citizens opposed to any ordinance may petition the Supreme Court for relief.

–Common law rights to the shore to fish, collect seaweed, swim and walk; Jackvony v. Powel, 67 RI 218 (1941) describes public rights to the shore.

–Supreme Court Ruling (state) Providence Steam Engine Co. v. Providence and Stonington Steamboat Co. 12 RI 348 (1829). This ruling says the state has governmental control of the shores and tidewaters for the benefit of the public to protect rights of passage and other rights.

APPENDIX F – REVIEW OF EXISTING STATE POLICY & LOCAL PLANS

South Kingstown's comprehensive plan, by the R.I. Development Council, 1965.

This plan designates the entire Green Hill Beach as recreation and open space. The town Community Facilities Plan designates the middle of the beach as open space: "The south shore area should be a resort area, committed to outdoor recreation . . . swimming, boating, fishing, golf, and sightseeing of historic and natural places . . ." These uses should be concentrated in a few areas.

The town council should adopt the comprehensive plan as a statement of its own goals. And the zoning ordinance should complement the Comprehensive plan, and if

possible be adjusted to it. However, the town is not following the plan, having zoned Green Hill Beach into Residential–20,000 sq. ft. minimum lot size.

Public Rights of way to the Shore, by the R.I. Statewide Planning Program, March 1970.

The goal of this report is to present ways in which public rights of way to the water can be developed and supervised.

South Kingstown has 12 right-of-ways to the shore, none near Green Hill beach. Charlestown has three public rights of way, one running N-S along the South Kingstown border then left onto the barrier beach ending at the breachway. It is recommended that the public way be posted and maintained.

Recreation Guide Plan, R.I. Development Council, June 1965

Private housing development has cut off public access to the shore in R.I.

Of the 420 miles of R.I. coastline only 6.25 miles are state owned. This is below the 15 percent recommended by the U.S. Department of the Interior.

The unique natural features of the coastline must be preserved by ownership by the state or by easement control

The state should take all reasonable opportunities to get shore property. The state should acquire title or control to salt marshes, barrier beaches, and rights of way to the shore. It should also develop public boat facilities, fishing areas and observation areas.

The state should be prepared to purchase the barrier beach in the south if it were threatened by development. The use of the beach should be public, designed for low intensity uses such as fishing and nature study.

Technical Paper No. 21, Protection and Control of the Salt Water Shore Area, by the R.I. Statewide Planning Program, May 1972

The shoreline area is considered one natural area to be protected and preserved for public use as stated in the amendment to the state constitution Sec. 17 of Article 1. Since federal policy is moving toward a definition of "critical areas" the state should initiate the following to define and select "critical areas":

1) Amend the Coastal Wetlands Act to give owners compensation for damage done by the states placement of restrictive use on his land;
2) Allow the Dept. of Natural Resources to withdraw orders of the act without payment of damages;
3) Redefine the entire shoreline as a "critical area," using new laws.

Report of the Governor's Committee on Narragansett Bay and the Coastal Zone, by the R.I. Statewide Planning Program, March 1970

This report inventories facilities, services and agencies influencing the coastal zone.

The report shows Green Hill Beach land use as partly recreation and conservation–the S. Kingstown portion zoned residential and the Charlestown section is not zoned.

R.I. Statutes relating to the coastal zone, as amended–from the General Laws of R.I.

42-2 permits the Federal Government to acquire land for certain purposes.
42-33 establishes a commission to define, mark, and open rights of way.
45-24-1 permits local flood plain zoning.
46-2 has state government cooperating with Federal government to stop floods, prevent shore erosion and improve harbors.

Plan for Recreation, Conservation, and Open Space, by the R.I. Statewide Planning Program, January, 1971

Preliminary land use plan for 1990 has all of Green Hill Beach zoned "Open Space–Recreation."

The goals of the plan are to improve procedures for protecting open space through acquisition of fee or easements, zoning, tax policies, etc. And to retain some undeveloped areas in their present condition indefinitely.

APPENDIX G – ZONING

Zoning allows owners to retain title to their land while giving governments the power to restrict and control development through legislation. South Kingstown has zoned Green Hill as R10, 4 dwelling units per acre. The criteria against which to evaluate zoning regulations can include the following defined by the San Francisco Bay Conservation and Development Commission:

Is the regulation reasonably related to a protectable legislative goal?

Is there equality of treatment for similarly situated landowners?

To what extent is the usability (value) of the land reduced by regulations?

Does the regulation indicate a benefit for the jurisdiction which could better be gained through condemnation and purchase?

Zoning may be used in several ways to control development in the coastal zone:

Large lot zoning: in this case private open space is preserved through large minimum lot size requirements. Residential density becomes the sole indicator of development impacts.

Cluster zoning: "the flexibility of the clustering principle, permitting controlled variations in setback, side-yard, and frontage requirements, and small lot sizes allows homes to be sited to take greatest advantage of terrain. Control of open space can be handled by a homeowners assn., by a land conservation trust, or by deeding the land or a conservation easement to the town.

Shoreline zoning: the creation of a shoreline zone in which the only uses – permitted are those which derive the maximum benefit from such location. These include cluster residences, outdoor recreation (swimming & boating), public enjoyment of the waterfront (restaurants, etc.) All would be subject to setbacks, dumping control and scenic control.

Re-zoning conditional upon agreement: zoning a parcel in a contested zone can be changed subject to private restrictions on the part of the owner. These could include stringent open space, height or lighting restrictions.

Aesthetic zoning: The conservation of natural beauty has been suggested as an area which could be covered through aesthetic zoning. Massachusetts courts recognize aesthetics as a proper object of police power regulations.

Floodplain zoning: creation of a flood danger zone, such as existed in South Kingstown before 1966 has three objectives:

1) to keep the floodway clear, only non obstructive uses allowed.
2) To retain natural storage capacity of the watershed, a developer must replace destroyed floodplain storage areas with an artificial floodplain.
3) to protect those occupying the floodplain by limiting uses, regulating floor elevations, building construction, safe exit etc., to reduce the damage when the flood hits.
4) an implicit objective is to reduce public expenditure required to protect people in the floodplains.

Flexible regulations allowing coastal zoning decisions to be made by an administrative agency following broad guidelines would be possible, provided that:

1) the comprehensive plan contained statements describing the types and locations of permissible development,
2) public hearings were required,
3) rulings would be explained in accompanying statements,
4) decisions could be applied to the council, and
5) a file of past decisions be kept.

Zoning by legislative permit could occur by setting standards for zoning changes or by contractual agreement between the legislature and the developer.

APPENDIX H – NATIONAL FLOOD INSURANCE ACT OF 1968[1]

While the findings and declaration of purpose of the act[2] cover a broad spectrum, several portions relate directly to the problems of shoreline land use controls:

> (c) (1) . . . (to) provid(e) appropriate protection against the perils of flood losses and encourag(e) sound land use by minimizing exposure of property to flood losses; . . .
>
> (e) . . . further . . . to (1) encourage State and local governments to make appropriate land use adjustment to constrict the development of land which is exposed to flood damage and minimize damage caused by flood losses, (2) guide the development of proposed future construction, where practicable, away from locations which are threatened by flood hazard. . . .[3]

For landowners in flood hazard areas to obtain flood damage insurance under the Program[4] a community must express a positive interest and adopt "adequate land use and control measures . . . consistent with the comprehensive criteria for land management and use developed (under the Program)."[5]

Emergency Program:

Basically, two sets of criteria exist for participation of coastal communities in the program (eliminating, for the moment, questions of riverine flooding). By meeting the initial criteria, a community becomes immediately eligible for participation in the Program. Under these first criteria, a community must:

> 1) require building permits . . .;
> 2) review all building permit applications for new construction or substantial improvements to determine whether proposed building sites will be reasonably safe from flooding. (If not, such construction must:
> (i) be . . . anchored to prevent flotation, collapse, or lateral movement . . .,
> (ii) use construction materials and utility equipment that are resistant to flood damage, and
> (iii) use construction materials and practices that will minimize flood damage;
> 3) review subdivision proposals and other proposed new development to assure that:
> (i) all proposals are consistent with the need to minimize flood damage;
> (ii) all public utilities and facilities, such as sewer, gas, electrical, and water systems are located, elevated, and constructed to minimize or eliminate flood damage, and
> (iii) adequate drainage is provided so as to reduce exposure to flood hazards; and
> 4) require new or replacement water supply systems and/or sanitary sewage systems to be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters; and require on-site waste disposal systems to be located so as to avoid impairment of them or contamination from them during flooding.[6]

To apply to the emergency program, a community must submit, among other things, a rough large-scale map showing the areas which have had a history of past flooding.[7] It is important to note that under this part of the flood insurance program, new construction is not covered.[8]

Communities entering the emergency program before December 31, 1971 are exempted from the above requirements in this phase, and are thus not required to have any particular controls on land use in such areas.

Regular Program:

At some point after receiving the application for participation in the Flood Insurance Program, the Federal administrator initiates a study to determine the actuarial rates for the community and necessary geographic and hydrological data on which the community may base its land use controls. For the ocean/coastal communities in Rhode Island, the data include the "area . . . having special flood hazards, . . . water surface elevation data for the 100-year flood, and . . . the coastal high hazard area."[9] Within six months after receipt of these data, the community is required to adopt further controls over land use in the specified areas.[10]

During the period of study and prior to adoption of controls, new construction is still not eligible. However, the data are then available for the community to define to those undertaking new building or making substantial improvements the exact extent of flood potential, and the general standards to be applied to evaluating such construction in determining rates for insurance coverage. Those who meet these standards and build above flood elevations will pay lower insurance rates when coverage becomes available. A community is not required to regulate construction at this stage beyond that cited earlier (under the emergency program).

The development controls in coastal flood plain areas must meet a second set of criteria, more stringent and extensive than the initial standards. These include (besides those in the emergency program), the requirements that the lowest floor, including basements, in residences and the lowest non-floodproofed floor in non-residential buildings be at or above the 100-year flood elevation. Existing uses below the 100-year flood in coastal high hazard areas may not be expanded, nor may development or substantial improvement in such areas unless it:

> is located landward of . . . mean high tide,
>
> is elevated and securely anchored on piles with the lowest floor at or above the 100-year flood level, and
>
> has no basement, and has an unobstructed space below to minimize impact of abnormally high tides or wind-driven water.[11]

The land use and control measures must also take into account those in neighboring communities, apply to all areas having special flood hazards, and supercede all other controls and regulations in flood hazard areas.[12]

Based on this review of the Flood Insurance Program, it seems likely that:

> Current construction on the barrier beaches will be eligible for insurance under the program, with *rates* dependent on the extent to which they meet applicable standards, and the relation of first floor height to 100-year flood elevation.
>
> Any other construction meeting State and local laws and ordinances concerning development in flood-prone areas would be eligible for coverage.
>
> There is no immediate danger to South Kingstown's eligibility if construction continues in barrier beach areas. If the town fails to adopt regulations meeting the standards listed above (under the regular program) by December, 1972, its eligibility for flood insurance could be discontinued when (and if) the Federal administrators get around to reviewing the case.

The Federal government is about to issue new regulations under the Flood Insurance Act. Expected in about two weeks, these should clarify the program by defining the standards more operationally (e.g., "flood-proof construction"). It is also anticipated that the new regulations will be more stringent (at least partly by sheer impact of definition) and that they will relate to other Federal programs such as those of the Federal Housing Administration.[13]

It is worth noting that the goals of the program call for much more in the way of controlling and limiting land use in sensitive coastal areas than the administrative regulations issued under the Act reflect. Relevant statutory goals which are supposed to be incorporated into community flood plain regulations include:

> to encourage only that development of flood-prone areas which:
> —is appropriate in light of the probability of flood damage and the need to reduce flood losses,
> —is an acceptable social and economic use of the land in relation to the hazards involved, and
> —does not increase the danger to human life; to discourage all other development.
>
> Factors to be considered include:
> Possibilities of reserving flood-prone areas for open space purposes,
>
> Possible adverse effects of flood plain development on other flood-prone areas,
>
> Possibilities of acquiring land or land development rights for public purposes consistent with effective flood plain management,
>
> For coastal areas, the need to establish programs for building bulkheads, seawalls, breakwaters, and other damage abating structures, and *for preserving natural barriers to flooding, such as sand dunes and vegetation* (emphasis added).[14]

These goals call for a far wider dimension of control and planning than the regulations issued under the Program reflect, however, and a community may qualify with no change in zoning and a slightly more stringent building code.

FLOOD INSURANCE STATUS OF
R. I. OCEAN-FRONT COMMUNITIES, OCTOBER, 1972

Regular Program—Land Use Controls Adopted:

Middletown
Narragansett
Newport

Regular Program—Land Use Controls Proposed (Data Received)

South Kingstown, (due, December, 1972)
Westerly, (due, January, 1973)

Regular Program—Data Received:

Jamestown, (due, October, 1972)
Charlestown, (due, December, 1972)

Not Applied:

Little Compton

16 other Rhode Island communities are in various stages of implementing the program, including all of the other coastal communities except Tiverton (as of June, 1972).

Source: Rhode Island Statewide Planning Program (State coordinating agency for the Flood Insurance Program)

1. 42 U.S.C.A., Chapter 50, Sections 4001-4127
2. 42 U.S.C.A., Chapter 50, Section 4001
3. Idem.
4. According to Brad Southworth (Statewide Planning, such insurance is virtually unavailable on the regular market.
5. 42 U.S.C.A., Chapter 50, Section 4012
6. C.F.R., Title 24, Subchapter B, Section 1910.3 (1972).
7. Ibid., Section 1909,22 (1972).
8. (Brad Southworth, Statewide Planning).
9. C.F.R., Title 24, Subchapter B, Section 19109.3(e), (1972).
10. The federal government is so far behind in enforcing this that Providence, currently three years overdue, is still in the program, as are four other communities less overdue.
11. C.F.R., Title 24, Subchapter B, 1910.3(3) (1972).
12. Ibid., 1910.3(b) (1-3) (1972).
13. Brad Southworth, R. I. Statewide Planning, 10-2-72.
14. C.F.R., Title 24, Subchapter B, Section 1910.23 (1972).

APPENDIX I – POTENTIAL METHODS FOR GOVERNMENTAL ACQUISITION

Federal Programs	Use
Bureau of Outdoor Recreation	
–Land and Water Conservation Fund.	Recreation
Grants cover 50 percent total costs for planning, acquisition, and development. (See also R.I. Green Acres Program)	
Department of Housing and Urban Development	
–Open-Space Land Grants.	Recreation
Grants cover up to 50 percent of costs of acquisition and development of land in urban areas for permanent open space use. May include acquisition of easements as well as full title. Displacees receive federal payments to cover moving and other expenses.	Conservation Scenic use
–Advance Acquisition of Land Grants.	Public works
Grants to cover interest on debts incurred in purchasing land, to local public agencies. For sites for development within five years.	Recreation
–Urban Beautification and Improvement.	Recreation
Grants for up to 50 percent of cost of improvements for parks and other public lands. Based on adoption of overall beautification program by local government.	Open Space
Bureau of Sport Fisheries and Wildlife	
–Fish Restoration Federal Aid.	Conservation
Grants up to 75 percent project cost, to state fish and game department. Eligible projects include acquisition, development, restoration, rehabilitation of fish hatching, feeding, or breeding areas (e.g. salt ponds and associated marshes)	Fish management
–National Wildlife Refuge System.	Conservation
B.S.F.W. acquires and manages for perpetuation of wildlife.	Wildlife-oriented recreation
Soil Conservation Service	
–Small Watershed Projects.	Recreation
Grants of 50 percent to state or local agencies include land acquisition and access rights, facilities, and conservation measures. Loans to assist local share are also available from the Farmers Home Administration.	Conservation Flood Prevention Other
–Resource Conservation Development Projects.	Recreation
Primarily technical assistance in area-wide planning, to create economic opportunity in rural areas. Funds of up to 50 percent of certain conservation development projects are available, however.	Conservation Other

Economic Development Administration

—Public Works and Development Facilities Grants. — Public Works, Development facilities, State Parks, Tourism, Flood Control

Grants up to 50 percent of project costs are available (through the New England Regional Commission) to projects which will directly or indirectly create new employment opportunities or enhance prosperity. Supplementary funds are also available to assist local share of other federal grant programs.

State Programs	Use
General Assembly	
Article 17, Section 1 of the R. I. Constitution provides that the General Assembly may authorize the state, or the town or cities to acquire excess lands in fee, to be held and improved for public purposes. (Under Art. 1, section 17 as amended, this might include natural resource conservation.)	Public purposes
Department of Natural Resources	
May acquire (by eminent domain, if necessary) lands, or easements, for parks and recreation.	Recreation, Parks
—Green Acres Land Acquisition Act.	
May acquire land for recreation or conservation, using eminent domain if necessary, with approval of governor, (delegated from Dept. of Administration to DNR Division of Planning and Development). Subject to availability of funds (currently $1.1 million).	Recreation, Conservation, Scenic uses, Wetland preserv.
—Protection of Birds and Animals.	
DNR may lease or control (by voluntary consent of owner) land for protection of useful wild birds and animals, or for propagation thereof.	Bird or animal propagation
Department of Transportation	
May acquire land for transportation purposes. Might include access to coastal areas, and circulation within project area.	Transportation
State Properties Commission	
The SPC may acquire property for public use if considered necessary or advantageous for any establishment or improvement of any government facility, public work, or public improvement.	Public works generally
Commission on Public Rights-of-Way	
The Commission has been authorized to acquire land to provide parking facilities to facilitate use of public rights-of-way to the shore. At least one of these rights-of-way is within the study area.	Parking for improved access

Local Programs	Use
Municipal	
—Green Acres Land Acquisition.	
Local communities are authorized to acquire and manage land to fulfill the conservation and recreation purposes of this act, apparently with the use of eminent domain, if required. Approval of the state is required if available State assistance is accepted. (See also Federal Land and Water Conservation Fund Program.)	Recreation, Conservation
—Conservation Commission.	
Subject to town council and financial town meeting approval, commissions may receive gifts of land or acquire fee or other interests in land for open space or conservation.	Conservation, Open Space
—Conservation of Open Spaces.	
Any city or town may acquire land or other property for open space uses, including conservation or enhancement of natural or scenic resources, preservation of wetlands, beaches, or soils, enhancing public value of adjacent parks or nature reservations, or sancturaries, or other open spaces. Also included are affording or enhancing public recreation, implementing duly adopted recreation/open space plan, and promoting orderly urban or sub-urban development. Subject to approval of town council and financial town meeting.	Recreation, Open Space, Orderly development, Enhancement of adjacent natural areas
—Comprehensive Plan.	
A municipal comprehensive plan provides the basis for zoning by the town. South Kingstown's plan, by designating the entire Green Hill beach as recreation and open space, provides a statement of town policy and an additional rationale for such acquisition.	Recreation, Open Space, Other
Special Districts	
Special districts in Rhode Island have many of the powers and capabilities of municipalities. Many of these have acquired land, some of which is currently in use as recreation and/or conservation areas. The main sources of revenue available to these districts are property taxes and borrowing.	Recreation, Other

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